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THE "PRIMITIVE PHYSIC" OF REV. JOHN WESLEY

A PICTURE OF EIGHTEENTH CENTURY MEDICINE

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Such is the general recognition of the character and eds of John Wesley that the prophecy of his sarstic biographer, Robert Southey, has come true. uthey said:

> Chere may come a time when the name Wesley will be re generally known and in remoter regions of the globe n those of Frederic and Catherine. For the works of such n [as Luther, Loyola, Wesley] survive them and con- ue to operate when nothing remains of wordly ambition the *memory of its* vanity and its guilt.

On the other hand, the little volume on domestic edicine entitled "Primitive Physic" that Wesley him- f thought was the best of his many books, is now nost forgotten. Having picked up a copy recently, a hurried reading I was so strongly impressed with strange combination of good sense and supersti- n in it, that I read it carefully and learned some- ing of the conditions under which it was composed. believe the analysis of such a work may have not ly an interest in recalling an almost forgotten period medicine, but also some value as an index of more dern conditions. A medical book of any early period likely to be interesting, particularly so when, as in e case of Wesley, the author is a *man of* superior ind and influence who lived at a time and in a state culture of cardinal importance.

This is not the place for a full account of the long d *active life of the "awakener of the English con-* th " but some facts should be known in connec- Vesle, qu the medical book that is my chief interest. cation. v was no common man, either in his birth ct, with His father had a superior, even brilliant, m with the ime traits that have justified a com- nded from a Vicar of Wakefield. The mother, at this distance, ne of intellectuals, had an austere of her nineteen fascinating personality, and sev- directed on origi hildren, whose early educations s. John Wesley ea al lines, were gifted in many fortunate in obta rly showed a love of study and al range, both in ex ning an education beyond the that day. Habits tent and accuracy, in the Oxford ysical and menta of hard study and of constant ver relaxed until activity, formed in early life, gure, able to ada his death. Handsome in face and the same time, t himself to all kinds of people, but lomineering and selfish, absolutely fearless in every kind of danger, he had enough of human weakness to make him a thoroughly sympathetic character for a biographer.

At a comparatively early age, while an undergraduate at Oxford, his attention was drawn to medicine. Having read the work on "Health and Long Life" by the celebrated Doctor George Cheyne, Wesley arranged his habits in accordance with the advice he found there, as well as in other medical works of either a popular or a technical character. Quite likely, as Southey said, he collected old women's nostrums. His interest in the care of the body in health and disease was unremitting. About a year before his book was published, with the assistance of an apothecary and a surgeon, he opened a dispensary in Bristol which was so successful that he followed it with others in Newcastle and London, combined with arrangements for the free treatment of the sick in their homes. On the discovery of electricity, he took a keen interest in the application of that force, in its then simple manifestations, to the treatment of disease. He bought a machine and appointed hours when those interested might try its virtues. Thousands, he thought, did so with great benefit.

In 1747, at the age of 44 years, he published "Primitive Physic." Twenty-three editions appeared during Wesley's lifetime, and the thirty-second and last London edition in 1828. My copy is one of the twenty-ninth London edition and is entitled:

"Primitive Physic:/ or/ an easy, and natural method/ of/ curing most diseases/ By the/ Rev. John Wesley, A. M./ Late Fellow of Lincoln College, Oxford./ *Homo sum; humani nihil a me alienum puto.*/ The Twenty-ninth Edition/ London/ Printed by Thomas Cordeux;/ Sold by T. Blanshard, 14 City-Road, and 66 Paternoster-Row./ 1820."

The preface is dated London, June 11, 1747. There are postscripts dated Bristol, Oct. 16, 1755; London, Nov. 10, 1760, and Otley, April 20, 1780.

According to the Index Catalogue of the Surgeon General's Library, no less than seven editions were published in America between 1764 and 1839, several of them combined with other works on domestic medicine. The latest combined with Wesley's the works of T. E Ware and Samuel Thompson, the latter well known as the "steam doctor."

It is certain that Wesley made, as he says in his prefaces, many revisions. Nevertheless, my copy shows many evidences of careless proof-reading, one of the most startling being the heading "200. A broken shin," which was remarked by Hawes in a criticism of the sixteenth edition, and which proves to mean a broken skin. It is possible that Wesley's habitual use of shorthand made him careless. The text gives many evidences of reformed spelling, as "t" for the suffix "ed." I assume that no revision took place after Wesley's death, so that although my copy is a very late one, it can serve as a source. The book is a duodecimo; the printed page measures 13.9 by 7.1 cm.; the pages number 12, 13-108.

The preface begins with a sort of creed agreeing closely with the Miltonian cosmogony, and stating that in the beginning of the human race there was no place for physic. "As man knew no sin, so he knew no pain, no sickness, weakness or bodily disorder. The habitation wherein the angelic mind, the *Divinae Particula Aurae* abode, although originally formed out of the dust of the earth, was liable to no decay, and there was nothing without to injure it." Now, on the contrary, "the seeds of wickedness and pain, of sickness and death, are lodged in our inmost substance; whence a thousand disorders continually spring, even without the aid of external violence," and "increased by everything around us." "The sun and the moon shed unwholesome influences from above; the earth exhales poisonous damps from beneath; the air that surrounds us is replete with shafts of death; the food we eat saps the foundation of life." To lessen these inconveniences, to prevent pain and sickness, we must follow the command "in the sweat of thy face shalt thou eat bread." Exercise and temperance, even without strict adherence to "bread or the herb of the field, go far to preserve us." Then comes an account of the development of empirical medicine, illustrated by the American Indians, whose manners and customs the author had had an opportunity of learning when a missionary in Georgia in his early manhood. Although Wesley had been disillusioned as regards the religious ideas of Indians, he held the conventional eighteenth century view of their medical knowledge, saying that their medicines were quick as well as infallible. He also refers to the traditional Cretan stag (should it not be goat, as related in the fable of Melampus, and the discovery of the cathartic action of hellebore?) and the Egyptian ibis with its invention of the clyster. In short: "Experience and Physic grew up together." "The European" [and he might have gone back to the ancient Babylonian] "as well as the American said to his neighbor, 'Are you sick? Drink the juice of this herb and your sickness will be at an end.'"

Later, said Wesley, came the philosophical age. "Men asked how they might account for these things. They examined the human body and its functions, as well as other animals, vegetables and minerals. Thus physic became inverted; hypothesis took the place of experience and experiment. Also simple medicines were disregarded and even forgotten, and those remote from common observation were used," and "at length physic became an abstruse science, quite out of the reach of ordinary men." Admiration and profit as well as honor attended physicians, who increased the difficulties of their art in order to keep the bulk of mankind at a distance. Technical terms were increased. The knowledge of anatomy, even astrology, was insisted on. Compound medicines were introduced, "containing so many ingredients it was scarce possible for common people to know which it was wrought the cure"; exotics, neither the nature or names of which their own countrymen understood; "yea, and of dangerous ones." But from time to time exceptions occurred, "particularly the great and good Doctor Sydenham and his pupil, Doctor Dover" (whose book, "The Ancient Physician's Legacy" first appeared in 1732). "And some such may be found in the writings of the learned and ingenious Doctor Cheyne, who, doubtless, would have communicated many more to the world, but for the melancholy reason he gave one of his friends, that prest him with some passages in his works which too much countenanced the modern practice, 'O sir, we must do something to oblige the Faculty, or they will tear us to pieces.'"

Wesley then gave his reasons for preparing the book, having consulted only experience, common sense and the common interest of mankind. He thought most diseases could be treated as he describes, thereby saving fortunes otherwise spent on physicians or "pining away, through the ignorance or dishonesty of physicians." Books there are already, he admits, but "too dear for poor men to buy, and too hard for plain men to understand," and in these are too many dear and far-fetched medicines; many dangerous, and consisting of too many ingredients; a thing that "can never be reconciled to common sense." "Experience shows that one thing will cure most diseases, at least, as well as twenty put together. Then why add the other nineteen? Only to swell the apothecary's bill? Nay possibly on purpose to delay the distemper, that the doctor and he may divide the spoil." "Nor are so many medicines needed for correcting each other."

Wesley's idea of the use of the book is naive enough. "As soon as you know your distemper (which is very easy, unless in a complication of disorders, and then you would do well to apply to a physician that fears God), take the first remedy indicated, or if it cannot be had, another. If the first does not give the desired result, use the second, third, and so on. The remedy that cures one man will not cure another of the same disorder, nor the same man all the time." Some remedies he termed "infallible."

In all cases he advised exactness in manner of living, warned against mixed and highly seasoned foods and recommended a sparing diet, only water as a drink, or, "good, clear small beer"; "as much exercise in the open air as possible without weariness, light supper; early to bed and rising betimes." Above all, "that old fashioned medicine, prayer and faith in God." He quoted some rules from Cheyne, and added some forcible words on the advantages of a calm and tranquil mind with the passions kept within bounds, principles that he himself exemplified to a singular degree.

In the postscript of 1755, Wesley speaks of the "swift and large demand for the book; three impressions were called for in five years; it was republished in a neighboring nation and inserted by parts in the public papers." So he revised the whole, "omitting some remedies not so easy to acquire and adding others easy to be had, if not in every home or yard, at least in every town and almost every village in the kingdom." Because they were extremely dangerous he omitted antimony, opium, "the bark," steel and quicksilver, "except in a very few cases." Again he recommended in uncommon or complicated diseases, application without delay to a physician that fears God.

In the preface of 1760 Wesley said he added the word "tried" to those remedies which he found of the greatest efficacy, though he thought many others might be of equal virtue. He also spoke enthusiastically of electricity, "which comes the nearest an universal medicine of any yet known in the world." At the same time he warned against the "substitution evil," which was probably much worse in those days of large and complex draughts than it is now. Twenty years later, In 1780, when he was 77 years old, Wesley issued a revised edition, again commending, in proper cases, the "physician that fears God." "From one who does not, be his fame ever so great, I should expect a curse rather than a blessing." Preferred medicines are now marked with an asterisk.

The text proper is headed "A Collection of Receipts," and consists of paragraphs recommending treatment, arranged under 288 headings in alphabetic order indicating diseases, symptoms and accidental injuries. There are 824 numbered paragraphs, but as there are a few without numbers, and as some paragraphs mention more than one form of treatment, the actual number of "receipts" is fairly large.

The nature of the headings may be gathered from a few. "Abortion, to prevent," comes first, followed by "For an ague," "Canine appetite," "To dissolve coagulated blood," "Hard breasts," "Cancer of the breast," "Children," "Chopt lips," "To prevent the ill effects of cold," "Blood-shot eye," "Pearl in the eye," "Old age," "A consumption," "Corns," "Delivery," "The Plague," "Worms," "Flat worms," "To open a wound that has closed too soon." At the end are a few recipes for various preparations, such as "Daffy's Elixir," a sort of eighteenth century peruna, containing senna, guaiac, liquorice, aniseed, coriander seeds, elecampane root and "raisins of the sun, in the best brandy"; a "more active preparation" contains also jalap and proof spirit or brandy. Turlington's Balsam, James' Powders, Scotch Pills, Emetic Tartar vomit and an eye water are also described. There are then a list of conditions cured by cold bathing, water-drinking, "electrifying" and the use of "fasting spittle," internally and externally. All are advised to buy their medicine at Apothecaries Hall, where "they are sure to have them good."

Much attention is given to general measures, as in Number 1, Abortion: "Women of a weak or relaxed habit should use solid food, avoiding great quantities of tea, and other weak and watery liquors. They should go soon to bed and rise early and take frequent exercise, but avoid being over-fatigued." "Persons who are subject to this complaint should steadily persevere all the year round in the use of the cold bath."

The bath is also recommended for ague, just before the cold fit, followed by the statement "nothing tends more to prolong an ague than indulging a lazy, indolent disposition."

From the section on ague we may learn the spirit of the whole work. Following the general statement just quoted, the patient is advised to take as much exercise as he can bear; to use a light diet, and for common drink, "lemonade is most proper." "4. Or take a handful of groundsel, shred it small, put it in a paper bag four inches square, pricking the side which is next the skin full of holes. Cover this with a thin linen and wear it on the pit of the stomach, renewing it two hours before the fit. Tried." "5. Or, apply to the stomach a large onion, split." "6. Or, melt two pennyworth of frankincense, spread it on linen, grate a nutmeg on it, cover it with linen and hang this bag on the pit of the stomach. I have never yet known it to fail." Other remedies are: yarrow; a drink of cold water followed by a sweat; "9, Or, make six middling pills of cobweb, take one a little before the cold fit; two a little before the next fit (suppose the next day), the other three, if need be, a little before the third fit. This seldom fails." Then, again, we find recommended salt of tartar (potassium carb.), sal prunella, camomile flowers, spirits of hartshorn, a small lemon, rind and all; 8 to 10 drops of laudanum or hiera picra; a waistcoat in which cinchona bark is quilted; a plaster of treacle and soot to each wrist, chicory water, wall flowers, beating together leaves and flowers with salt and applying to the sutures of the head; turpentine on the small of the back, vomiting with ipecac or saffron in wine.

The following are selected to illustrate the remainder of the book: "89, For hard breasts. Apply turnips roasted till soft, then mashed and mixed with a little oil of roses." "91, For a bruise, * Immediately apply treacle spread on brown paper. Tried." "92, Or, apply a plaster of chopt parsley mixt with butter." "93, *Electrify the part. This is the quickest cure of all." For burns, lime water and sweet oil "in the thickness of cream" is said to be the most effectual application the author ever met with. This is the well-known carron oil, or linimentum calcis, U. S. P., as directed by the British Pharmacopeia. A cancer of the breast of thirteen years' standing is said to have been cured by frequently applying "red poppy water, plantane, and rose water mixed with honey of roses." "107. If it be not broke, apply a piece of sheet lead, beat very thin and pricked full of pin-holes, for days or weeks, to the whole breast." Another remedy is "quicksilver and aqua sulphurata," which "has cured one far advanced in years." "Doctor Cheyne says a total asses' milk diet, about two quarts a day, without other food or drink, will cure a confirmed cancer." For "cholic in children," among other things a small teaspoonful of tartar emetic, one grain to four ounces of water," "will puke a child a week old; a large teaspoonful for a month old and so on in proportion. Repeat the puke every day, or every other day, as required."

Sixteen methods are recommended for dropsy, such as dock leaves bound around the joints and feet, inhaling the smoke of amber and vinegar on a burnt brick, or dwarf-elder tea, "which works by urine," and cures a dropsy in twelve hours' time. For sciatica, "boiled nettle poultice has been known to cure after 45 years' standing."

Wesley used physical means with great enthusiasm. He mentions massaging the abdomen an hour a day for dropsy, salt rubs for the apparently drowned, massage for earache and headache; for the breasts, after steaming, "to resolve coagulated milk," and for flabby swellings, followed by a proper bandage. "To kill the animalculae that cause the gums to waste away from the teeth" he recommends gargles of salt water. He advised change of air in whooping-cough, bleeding for menorrhagia and in plague—50 to 60 ounces for the latter.

External methods of treatment vary from the simplest to the strangest or most absurd; from lime-water and olive-oil in burns, or turnip poultices for hard breasts, to soot and treacle for ague, hogs' lard to the feet for whooping-cough, scraped peony to the feet for convulsions, rotten apple poultices for inflamed eyes. (He warned against bread poultices over inflamed eyes.)

He recommended issues, then in great repute, for asthma and to cure quinsy, for the latter placing the issue in the thigh. His ideas on clothing were sensible, advising against the roller for infants, and commending the flannel binder for colic. Clysters he used sparingly, as for apoplexy, butter and salt, laudanum for hysteric colic, and cold water with woodbine in fevers.

He gave suggestions about diet, including such things as prunes for constipation (used by the Romans), whole wheat bread—long before Graham—for the same; bread crusts for dropsy; vegetables for obesity; oysters, four or five, for heart-burn; withholding meat from children under 2 years and tea before 12. Milk he often recommended, as in the treatment of asthma, epilepsy, consumption and whooping-cough.

Charms, amulets and other strange or occult methods are numerous and varied. I have noted about seventy, a small proportion of which only can be quoted. There is a little roll of white paper placed under the tongue for nose-bleed; a sheet of lead (mentioned before) to be worn for days or weeks over a cancer of the breast; powdered horse-spurs ("warts that grow on the inside of the horses' fore legs") in ale, for the same, or goose-dung and celandine externally; "or blow the ashes of scarlet cloth into the mouth or throat for cancer of the mouth. It seldom fails." This is also used for thrush. For consumption, "take a cow-heel from the tripe house, ready drest, two quarts of new milk, two ounces each of hartshorn shavings and isinglass, a quarter of a pound of sugar candy and a race [root] of ginger; put all of these in a pot and set them in an oven after the bread is drawn. Let it continue there until the oven is nearly cold; and let the patient live on this. I have known this to cure a deep consumption more than once." Cow's heel broth is also recommended externally for restoring strength after rheumatism. "184, Or, every morning cut a little turf of fresh earth, and lying down breathe into the hole for a quarter of an hour. I have known a deep consumption cured thus." "191, In the last stages, suck a healthy woman daily. This cured my father." [In the twenty-sixth New York edition, according to Plummer, *Nashville Journal of Medicine and Surgery,* October, 1858: "tried by my father."] For cramp he advised tying the garter tight under the knee; or "hold a roll of brimstone in the hand. I have frequently done this with success." For films on the eyes: "dry zibethum occidentale, i. e., stercus humanum, slowly, powder it fine and blow it into the eye twice or thrice a day." For hot or sharp humors, "lap a thin slice of raw beef on the nape of the neck. Tried." For white specks in the eye, "going to bed put a little ear wax on the speck. This has cured many." For epilepsy many methods are advised, as "blow tobacco smoke down the throat."

Metallotherapy is anticipated by saying, "One who is subject to the falling sickness may prevent the fit if he feel it coming on, by this simple expedient. Let him always carry a piece of metal as broad as he is able to hold between his teeth when his jaws are stretched to the utmost. When he feels the fit approaching, let him immediately put this between his teeth so as to keep his jaws at their utmost stretch. In about a minute this will bring him quite to himself and prevent the fit for that time." "Or, in the fit, a similar maneuver by a bystander will stop the fit." For gout, "apply a raw lean beefsteak. Tried." For iliac passion, "hold a live puppy constantly on the belly. (Dr. Sydenham)." "For pleurisy take half a drachm of soot." Warm cow-dung spread on leather, with cumin, is advised for "windy rupture"; "it commonly cures in two days." "Rubbing with fasting spittle" is recommended for shrunken sinews: "Tried." "To stop vomiting apply a large onion split across the grain to the pit of the stomach, Tried." "For relaxed uvula, bruise the veins of a cabbage leaf and lay it hot on the crown of the head; repeat if needed, in two hours. I never knew it to fail." For a whitlow a poultice of chewed bread is recommended.

To one not familiar with medical practice in the eighteenth century, these trivial, absurd or disgusting remedies seem impossible for a man of Wesley's education and knowledge, in an age after Bacon, Harvey, Locke, Sydenham and Newton and in the century of Hume, Voltaire and Franklin, in the period of the Encyclopédie, the "Wealth of Nations" and the "Social Contract." Those who recall the practice of Wesley's contemporaries, or who investigate it, will come to a different conclusion. Let us consider the period and the medical ideas during the time in which Wesley lived, leaving out of consideration the fact that he was a theologian, because we may see that that had little to do with the case. He was a man of wide reading and contact with all kinds of people and had a mind open to many topics. His life almost filled the eighteenth century, June 17, 1703, to March 2, 1791; a century that proved epoch-making for England's political greatness and literary preeminence. The essay and the modern novel began then with great brilliancy; Shakespeare became permanently established as the greatest figure in English literature, while a galaxy of other immortals left their impress on prose and poetry. Blenheim was fought the year after Wesley was born, the Battle of the Nile the year in which he died. Although it has been called the age of enlightenment, it has also been aptly called the "Cinderella of Centuries," and in regard to social and intellectual conditions the reproach is only too well deserved. The Revolution, which brought in a new, and, in many respects, liberal government, did little to elevate intellectual development, encouraged hardly at all by the Puritans. Newton enriched physics and gave a stimulus for future investigations, but his immediate effect on medicine was chiefly the strengthening of crude mechanical theories. During the Civil War and under the Restoration quackery reached a degree of boldness and rapacity never known before, and probably not since.

The microscopic discoveries of Leeuwenhoek in the end of the seventeenth century were not followed up very actively during the whole of the eighteenth century. In practical medicine the objective clinical observations and relatively sober therapeutic methods of Sydenham made hardly any impression until after Wesley's death, when the great French school of Corvisart, Bichat, Bayle and Laennec began the real medical renaissance. The fact that Wesley commends Sydenham and his disciple, Dover, the buccaneer and inventor of Dover's powder, is of more than passing interest, for Sydenham has always been one of those more talked about than read, more praised than studied, and while the great masters of medicine al joined in lauding Sydenham, the rank and file of th profession were almost wholly uninfluenced by hi methods, but continued, as Locke said, in "the romanc way of physic." There were some extenuating circumstances. Sydenham praised the clinical methods o Hippocrates, but so did every system-maker who flourished in the long centuries of system-making. H lauded accurate observations and well-founded deductions, and his clinical pictures are often models of clearness, but also often so loaded with theories that it is tiresome to read them now. If he deserves credit for recognizing the importance of morbid processes, he did much to continue the error of the personification of diseases. Though he praised objective delineation of clinical conditions, he assisted in fixing the idea of species in disease, like those in botany. His view that the Creator had placed remedies in every land that act as specifics in every important disease, was quite as harmful as the older theories and has weighed down medicine even to our time. I shall give some examples showing that his methods in therapeutics hardly deserved Wesley's praise.

Of Sydenham's followers, one of the most renowned was Boerhaave. He improved on Sydenham in the fulness and accuracy of his clinical pictures, and made a great advance by his efforts to associate the anatomic changes with the symptoms. His therapeutics were immensely ahead of his time, for he taught principles and rarely gave formal prescriptions, but it is more than probable he could not be understood by many of his contemporaries. This is the main reason why he is known chiefly through Van Swieten and Haller, his most brilliant pupils. The former deserves credit for the stimulus he gave to clinical teaching in Vienna, but this only became effectual late in the century, and the same is true of the physiologic innovations of Haller.

In England the names of Pitcairn, Pringle, Cheyne, Morton, Huxham, Mead, Cullen and Brown are the most conspicuous before and during Wesley's time, and they are read now only by students of medical history. Some of them I shall have to quote. A few more names and dates will make Wesley's medical and biologic environment plainer than any detailed explanation.

John Hunter, the greatest mind of the period, was twenty-five years younger than Wesley, and outlived him two years. Morgagni was twenty-two years older; his great work on the "Seats and Causes of Disease" did not appear until 1761, and although in time it helped to destroy the dogmas that had so shackled medicine before that, the effect on the practice of the time was slight. Peyer, Leeuwenhoek, Leibnitz and Mead were older. Haller was five years younger, Lieberkühn, Van Swieten, J. F. Meckel senior, Senac, Casper Friedrich Wolff, Linnaeus, Auenbrugger, John Brown and Huxham were almost contemporaneous. Priestley, Vicq d'Azyr (1748-94), Sömmering, Cuvier and Galvani were born when he was middle-aged or later. Lavoisier was guillotined three years after Wesley's death, and Jenner made his first experiments with cow-pox two years later. Bichat was not born until Wesley was nearly three score and ten. The public teaching of anatomy in England began in the early part of the eighteenth century. Inoculation was introduced into England when Wesley was 18. Electricity was discovered in 1745, when Wesley was 42. Black discovered carbon dioxid in 1750. Cavendish made his observations on air when Wesley was over 60, and made water from gas when he was almost 80. The use of digitalis was not made known by Withering till Wesley was 72 years old.

Wesley's attitude toward medicine was, of course, to be explained partly by general mental traits, and one of his most pronounced characteristics was a deep-seated credulity. As a child he experienced the ghost episode in his father's rectory, so fully related by all his biographers, and he always inclined to a supernatural explanation for it, though his brother Samuel shrewdly suggested that while "wisdom found no explanation, wit might find many" for the ghostly knockings. He recommended in general the habit of suspending judgment as a safeguard against hasty decisions, but Lecky is perhaps right in saying he was utterly incapable of that function. He believed in the claim of Elizabeth Hobson, of seeing her neighbors just before or at their deaths and in a celebrated prediction of the end of the world. He believed in witches, thinking that to doubt them would be to disagree with the authority of the Bible, but in Wesley's time many people little influenced by the Bible believed in witches. Several witches were executed in Wesley's childhood; the last, in Scotland, was burnt in a pitch barrel in 1727 when Wesley was a Fellow of Lincoln College. After the earthquake in Lisbon in 1755 the London theaters were closed for a time out of fear of a similar judgment.

Wesley was curious and inquisitive, but was a better logician than observer, like many in his time, and it was a time when reasoning was valued much more highly than accurate observation. As Lecky says, Wesley had an exaggerated passion for reasoning, but neglected premises.

Some of the great delusions of the middle ages still flourished. Belief in the healing power of the royal touch for scrofula was stronger after the Restoration than ever before, and the prayer used in the ceremony was inserted in the Prayer Book in the time of Queen Anne and repeated in that of George I. Samuel Johnston was "touched" in 1712. Not only great divines, but surgeons of reputation testified to the reality of the cures. Ridicule did not shake it. In France other gifts of Louis XIV gave rise to a parody on the formula: "Dieu te guerisse, le Roy te touche" —"God save you, the King has kissed you," but the custom was kept up in France until 1825, and even later, in remote parts of Scotland, coins with the effigy of Charles I were supposed to carry the miraculous power.

Let us analyze some of Wesley's medical methods and views more in detail. Taking first materia medica, he used about 160 drugs. All of them and more were used by Sydenham, and particularly many that are now obsolete. Seventy-eight, or nearly half, are still in the U. S. Pharmacopeia. Eleven others were formerly there, most of them up to 1890 (valid to 1903) and forty more are mentioned in the second part of the U. S. Dispensatory (1907). Most of the official drugs used by Wesley are completely ignored by leading physicians now, and he rarely used the more potent drugs. So we find asafetida mentioned only once, for insomnia, "as good as opium"; aloes, arsenic (for cancer of the breast, internally), cantharides (for diabetes), digitalis (for white swellings), male-fern (for worms), each once only. Tincture of iron is used only on tents, for nose-bleed, but steel filings, official in the U. S. P. in 1850, is recommended for green-sickness, and forge-water for mouth wash with alum. Laudanum, aside from its use in ague, is recommended for colic, in clysters, in epilepsy, and for quinsy, at night. On the other hand, tar-water is recommended for twelve conditions, including old age. (Bishop Berkeley, who made tar-water famous, was earlier than Wesley.) Burdock root and seed are recommended eight times for various conditions, from colic to leprosy; nettles are used for eleven conditions, from hemoptysis to sores ("any old sore" as Wesley, with a modern touch, puts it), or nettle stings.

It is interesting to compare Wesley's treatment with that of some of his contemporaries and I begin with one whose works had great influence during the latter half of the eighteenth century. Frederic Hoffmann was more than forty years older than Wesley, and lived until the latter was almost 40. He was a man of extraordinary industry and corresponding influence. According to him, reason and experience were the foundations of medicine, which in time would become a science through the aid of physics and anatomy. His mechanical theories gave the characteristic features of his system and long affected the views of the profession. He deserves credit for popularizing the use of mineral waters, and one of his mixtures, well known as Hoffmann's anodyne, is still prescribed. Guided by his view of pathology, he made extensive use of antispasmodics, sedatives and evacuants.

In tertian fever Hoffmann vomited with ipecacuanha or tartar emetic; he thought repeated attacks of intense heat may dispose the stomach to inflammation and therefore endeavored to lessen the fever. Purging salts may be substituted for, precede, or be combined with, emetics, or if there is great weakness or sensibility of the stomach, emollient and carminative clysters and gentle laxatives, manna, rhubarb, sal diureticum (Potas acetas) and some aromatic oil are to be used. "The next indication is to strengthen the solids, particularly the stomach and intestines; and of all the known astringents or corroborants, Peruvian bark is the most successful; given in the time of intermission in doses of about half a dram every four hours." "It raises the pulse and spirits and increases perspiration in choleric persons, loosens the belly and by these marks discovers its salutary operation." After the fever has been removed, the bark must be continued with elixir of vitriol, bitters and some stomachics. Niter, sal ammoniac or alkalines may be added to the bark in certain cases. Venesection is proper and an infusion of chamomile flowers is to be drunk some hours before or after. "In obstinate tertians, as autumnal ones generally are, and those which have degenerated in quotidians, antifebrile draught composed of simple waters, salt of wormwood and spirit of vitriol, exactly neutralized, is of eminent service." Hoffmann opposed opiates in malaria, against the authority of Sydenham and Lind.

The history of a case is instructive, in showing the overdosing and the long course of the disease. "The hot fits continued six hours. During the third paroxysm, saline nitrous juleps were given at intervals; the crisis promoted by an infusion of scordium (alliaria off.) and lemon peel; and niter with sal diureticum given in the intermission." These medicines were continued until the ninth paroxysm, when "the symptoms being much mitigated, the patient was purged with manna and sal polychrest (saltpeter and sulphur), the fever stopped by an electuary of bark and the cure confirmed by balsamic peels and an aperient saline powder."

For hemoptysis, Hoffmann advised a mixture as a decoction in ale, of daisies, red roses, chamomile flowers, milfoil (*Achillea,* U. S. P. 1870) tops, saracens, comfrey, ground ivy, dead nettle, veronica, sanicula, wintergreen, fennel, fennel seeds and nutmeg.

For consumption he recommended milk; that of the ass on account of its "sweet detergent serum"; "for healing lacerated parts, goats' milk will suffice; and for repairing the wastes of flesh and strength, nothing can exceed human milk, sucked immediately from the breast." "The virtues both of milk and whey can be improved by feeding the animal on pectoral plants."

For cleansing and healing pulmonary ulcers, the best balsam is composed of copaiba, myrrh, saffron, aromatic oils, opium, oil of almond, spermaceti, honey and wax.

"As phthisis frequently proceeds from translation of acrimonious humors to the lungs, the revulsion and evacuation of chest humors may be attempted by issues in the neck and between the shoulders."

For iliac passion Hoffmann quoted Hippocrates' method, and went on to give anodynes and carminatives, or if these fail, a pound of quicksilver.

For skin diseases, he used baths with slag, but looked on bleeding as the chief remedy, even in the itch, and held that external remedies should always be the last, and not used until blood and humors were purified.

Another influential author in Wesley's early life was Richard Morton, whose works on consumption, fevers and other diseases were held in high repute for a long time. In the treatment of consumption of the lungs, Morton advised bleeding, followed by a "gentle vomit" of honey of squills; "yea, and sometimes crocus metallorum (antimony), after which opiates are to be used, such as cordial milk water, carduus water, barley-cinnamon water and white poppies." Purges are to be added, like senna, cassia, tamarinds, coriander seed, manna and sal prunella. A sleeping medicine is to be given, such as rose, aloes and houndstongue pills, gilt, given every other night "after the patient has been blooded," besides diaphoretic and sudorific medicines and vesicatories to the arms and shoulders. "We must not by any means neglect the frequent use of those medicines commonly called pectoral or pulmonary, which must be used very plentifully, as it were in the manner of a diet, but always in such a form as is most grateful to the patient. For these we may take sugar candy, sugar of roses, or black lozenges for a cough, which must be often and gently swallowed. Butter, buttered ale, linseed oil, raisins and figs may be used; a "neat form" of expectorant is the following: "Oil of fresh almonds, syrup of comfrey, red poppies or dried roses, syrup of meconium—an opium preparation—and sugar of roses, or lohock of foxes' lungs, colt's foot, purslane, syrup of jujubes, maiden-hair, flower of brimstone, tincture of saffron, cold species of tragacanth, of pearl, Haly's powder, saccharum peridiatum." There are many pages of such prescriptions, one containing powder of wood-lice. It may be supposed that the lohock of foxes' lung is a vegetable remedy, but this is not so, the lungs of real foxes, killed in hunting, being used.

The celebrated Huxham gave one of the most accurate of the early descriptions of typhoid fever. He also had the sagacious view that bleeding was not useful in that disease. What he recommended was a blister behind the ear, "a gentle emetic" and "an easy clyster." "Blisters," he says, "are useful at all times of the disease, for by them the oscillatory motion of the vessels is promoted and the subtle salt of the cantharides incides the viscid humors, and at length expels them."

He further advised "attenuants which greatly irritate the nervous fibrillae," such as cinnabar, sulphur, galbanum and asafetida. Large quantities of simple cold water he considered harmful, but Peruvian bark, snake root, elixir of vitriol, tincture of roses, mulled wine, etc., are all advised.

Huxham also studied lead colic and treated it rather more actively than Wesley. He gave a vomit of ipecacuanha, sal absynth and chamomile flowers, to which tartar emetic may be added, followed with purges with opium and calomel, and later by milder cathartics like rhubarb.

Let me quote from Sydenham himself to show the examples Wesley had. I gave Wesley's treatment for iliac passion, which included, in the fashion of the time, various forms of intestinal obstruction. Among other things, he mentioned the use of a live puppy and referred to Sydenham.

In the treatment of that form of ileus due to irritation with inverted action of the peristaltic movement, the English Hippocrates rejected bullets and quicksilver. He began with salts of wormwood in lemon juice night and morning, with sweetened mint water between, and a "live puppy kept continually lying on the naked belly." Two or three days after the pain from vomiting had wholly ceased, he gave a drachm of Pil. coch. maj. in mint water. "The puppy is not to be taken off before the patient begins with the pills." The pill mentioned contains:

French hiera picra	ʒ x
Lozenges of alhandal (colocynth)	℥ iiss
Scammony	ʒ iiss
Gummy turbeth (mercuric subsulphate) French lavender, āā	ʒ v
Syrup of French lavender	q. s.

[Hiera picra was made of cinnamon, lignum aloes, asarum root, spikenard, mastich, saffron, aloes unwashed, and honey.]

When we see Sydenham using such mixtures and many others containing from three to five dozen ingredients, we understand the practical result of his theories. "A murderous array of diseases has to be fought against," he said, "and the battle is not a battle for the sluggard."

There is an interesting example of Wesley's scholarship in the reference to the use of a live puppy. In Latham's translation of Sydenham's works, published by the Sydenham Society, a "live kitten" is specified. In Kühns' Latin edition, as well as in Greenhill's, used by Latham, the word is *"catulum."* Now *catulus* means in general the young of any animal, but especially a puppy, as shown by illustrations in Harper's Latin Dictionary. Mead, a contemporary of Wesley, quoted this use of a puppy with approbation.

As Sydenham's therapeutic methods were relatively simple, as compared with the prevailing practice, we can understand Wesley's advance in the same direction. His care for the purses of the sick can be understood by the complicated mixtures then, and much later, in use. Dover gives the actual figures by saying he "could never bring an apothecary's bill to three pounds in a fever; whereas some of their bills in this disease amount to forty, fifty and sixty pounds."

Boerhaave, nearer to Wesley's time, and in many respects more modern in his treatment than Sydenham, used methods that make Wesley's look like sheer mental suggestion. For apoplexy he bled, used setons and fly blisters, bandages to the extremities, irritating powders to the nose and pharynx in order to "separate the pituita from the blood in the brain and set free the vital spirits," while internally he gave woodlice and cochineal.

For epilepsy he described, but did not recommend, the use of the blood of strangled gladiators or other men, and used from the time of Arataeus to that of Tulpius, whose face, immortalized by Rembrandt, still ornaments medical schools, though his works are never consulted. He also found it necessary to oppose, in the eighteenth century, the use of human livers, the brains of children or the skulls of men dead from violence, saying that what was needed was medicinal aid and not human sacrifices.

That Wesley was no mere collector of recipes, but had his own ideas on medical topics, appears in many instances among the methods of treatment. So, to prevent catching infectious fevers, he warned against breathing near the face of the sick, or swallowing saliva while in the sick room. Flooding in lying-in is "never to be thought little of." He objected to the common advice not to attempt to cure gout, saying he had cured himself many times. He held that madmen are all cowards and "may be conquered by binding only, without beating," anticipating the reform of Pinel by half a century, and the practice of some American asylums much longer. For the bite of a mad dog, for which he gives several simple remedies, he adds with a "pointer": "Immediately consult an honest physician." He says he was bitten six times by mad dogs and cured by squeezing, bathing and washing the wound for an hour with salt water—a pound to the quart—and binding salt on it for twelve hours. He warned against constipation and against catching cold after measles. A statement never too commonplace is, "When the nerves perform their office languidly, a good air is the first requisite." After giving a mixed herb wine for hernia, he adds that a good truss is of great use and perhaps the only thing to be depended on. Scaldhead in children, he said, would seldom be seen if proper regard were paid to cleanliness in the head and apparel. He asserted there were no worms in teeth, and said that coral was "always useless for children, and often hurtful." To prevent flatworms he advised against drinking stagnant water.

Regarding itch, he said: "This is nothing but a kind of very small lice, which burrow under the skin. Therefore, inward medicines are absolutely needless. Is it possible any physician should be ignorant of this"? He advised strong rum, black soap, sulphur, white hellebore and cream, and lemon juice with oil of roses. The answer to his question is a melancholy one, for the itch has a long and not very creditable history. The Greek, Arab and medieval physicians knew the disease. In the middle ages the insect was known and was supposed to be a louse or a weevil. Thomas Moufet, who died in 1600, gave a description of the mite, which had been seen and described by Joseph Scaliger in 1557, and Bonomo rediscovered it in 1687. A century earlier Roudelet described the operation of extracting the insect with a needle. Bonomo and Cestorio gave a clear account of the relation of the mite to the disease and Linnaeus and de Geer described it zoologically; but Wichmann had to repeat Bonomo's arguments in 1787. Nevertheless, leading physicians through all of this period and almost to the middle of the nineteenth century refused to believe in the etiology and ascribed the itch to acrid humors and morbific blood. Gales mystified the French savants with cheese mites in 1812, and it was not until 1834 that Renucci, a Corsican student who learned from old women in his fatherland how to extract the insects with needles, settled the question in Paris. The male insect was not discovered until 1845, by Kraemer, and Eichstedt a year later first described the eggs in the burrows.

Another interesting evidence of Wesley's advanced point of view is in the frequent use he made, or recommended, of water, internally and externally. In the text he recommends cold baths no less than sixty times, and in the section at the end of the book he gives a summary showing their application to various diseases, from convulsions and insomnia to hydrophobia. The use of baths for the latter—including keeping the patient under water as long as possible—is very old and, of course, baths had been used in medicine long before, but just before or during Wesley's time, they became relatively neglected. Even the enthusiastic reports of Sir John Floyer had little effect on this neglect. Floyer, it will be remembered, introduced the use of the watch in pulse-counting and made important observations on the pulse under various conditions, including its relation to respiration. In 1697 he published "An inquiry into the right use of the hot, cold and temperate baths in England." In 1702 he published his "Psychrolusia," in which he referred the hydriatic treatment of disease to baptism, and ascribed the spread of rickets to the change from baptism by immersion to merely wetting the head. Cheyne and Mead used cold baths and Smith (1721) used them for improving the constitutions of children, and a clergyman, John Hancock, in 1773 recommended them for measles and other fevers. Apparently little influence was exercised by any or all of these writers, while Cullen labored in the profession and Buchan among the laity to extend the use of water, but it is certain that Wesley was aware of their doctrines and preached them with energy. It will be recalled that the proverb "Cleanliness next to Godliness" is his. I think he may have obtained some of his views from the book of Johann Sigmund Hahn, "Die wunderbare Heilkraft des frischen Wassers," Schweidnitz, 1745. It is interesting that Wesley quotes a case related by Floyer without indicating its source, while Hahn gives it more fully, with credit. Wesley makes the brief statement under "A cancer of the breast," "Use the cold bath. (This has cured many.) This cured Mrs. Bates of Leicestershire of cancer of the breast, a consumption, a sciatica and rheumatism, which she had had near twenty years. She bathed daily for a month and drank only water." It is amusing to find that Hawes, one of Wesley's severest critics, doubted the existence of this Mrs. Bates.

Hahn says:

> Mrs. Bates, a woman of 50 years, was consumptive, coughed hard, had pain in the limbs for 20 years, especially sciatica; had immobility and weakness in the knee, sat constantly by the fire, covered with many garments, and could not stand a draft; she had lumbar pain which she thought due to stone and a pain in the breast that was thought to be cancerous. She went to Willowbridge bath, which is very cold, also drank several glasses and so continued for several months. The first time the heart was very painful, later not so much so; with the next bath the pains retracted from the back to the feet, and at last she was perfectly well and without relapse; she walked and ate well, dressed lightly; the stone was gone and also the tumor in the breast. She continued drinking water.

Another case mentioned by both Wesley and Hahn is that of Mrs. Watts, who, by using the cold bath two and twenty times in a month, was entirely cured of an hysteric colic, fits and convulsive motions, continual sweating and vomiting, wandering pains in her limbs and head, with total loss of appetite (164). Hahn describes the patient as weak and hectic. "Medicines and Bath water internally and externally had no effect. She took cold baths in London, bathing every morning, and plunging under water six or seven times before going to bed, and so was cured."

An interesting contrast to Wesley's enthusiasm for water is his extensive use of saliva, especially "fasting spittle," which "outwardly applied relieves or cures blindness, gout, gravel, King's evil, leprosy, palsy, rheumatism, scurvy, stone and swelled liver." This is still in use in Germany, according to Bartels.

In the case of these more extraordinary remedies Wesley was, of course, following old examples, some of which go back to the very beginning of medicine. An instance of this is the "Zibethum occidentale," or stercus humanum, recommended for films over the eyes. Paullini, in the well-known "Heilsame Dreckapotheke," has several chapters devoted to diseases of the eye, such as pain, red and running eyelids and cataract, in which he quotes many contemporaries in such a way as to prove Wesley lacking in appreciation of the world of materia medica literally under his feet.

Another interesting survival is human milk, which was apparently used in wasting diseases in the time of Wesley, though it seems to have been neglected since then.

Wesley's care of his own body is one of the best evidences of his judiciousness in such matters. He is a good example of the truth of the adage: "A man is a fool or a physician at forty." He did not come from a particularly healthy family, and he inherited the family gout. Many of his brothers and sisters died young; he spent his early years in the malarious fen country. Lack of food was no uncommon event in his youth. Nevertheless, he lived to the age of 88 years, and accomplished an amount of physical and mental labor, either of which would be most unusual. Some details of the methods he used to maintain his health, and the work he accomplished, should be considered. He himself ascribed much of his good health to the scheme of life he adopted from Cheyne. Cheyne condemned salt and seasonings, also pork, fish or stall-fed cattle, and recommended for a drink two pints of water and one of wine in twenty-four hours, with 8 ounces of animal and 12 ounces of vegetable food in the same time. Besides what he learned from Cheyne and from the popular medicine of Tissot, Wesley laid stress on his constant exercise and change of air; his never having "lost a night's sleep, sick or well, on land or sea"; "having sleep at command so that he could call it and it came"; to having risen for more than sixty years at 4 a. m., preaching at 5, and having so little pain or sorrow. The account of his early rising is interesting. At one time he was troubled with insomnia, but cured it in the following way: He set back an alarm clock an hour each morning, from seven to four, and when he reached the latter found that he went to sleep at once and slept until four, which he fixed for his rising hour. He was a constant reader, and an indefatigable traveler. He went about much on horseback, reading as he went, and sometimes getting bad falls. At 83 years he traveled 76 miles in a day, and preached three times. At 85 he delivered more than eighty sermons in eight weeks.

Besides gout, which he mentions, he had hemorrhage from the lungs in middle age (50 years), and was advised by Fothergill to stop preaching, but did not. He also had an operation of some kind, and in 1789 had what he called diabetes. At one time he gave up the use of tea, but resumed it again at Fothergill's advice. The strain of preaching to several thousand people in the open air he never seemed to feel. While he weighed but 122 pounds, his voice could be heard at 140 yards, and he was able to rivet the attention of 8,000, 10,000 or even 20,000 people.

Though he was interested in the health of his people, he had no patience with interesting invalids, valued the services of physicians, and treated the numerous examples of religious hysteria that occurred in his congregations with great skill, having the subjects at once removed out of his sight, where, as he said, they became as quiet as lambs.

It is difficult to say how much influence "Primitive Physic" had. Southey thought it was very great and very pernicious. Judging from medical literature and medical practice it does not now seem to have done much good, and probably very little harm, and this is in contrast to what almost all critics have thought of Wesley's other achievements. Leslie Stephens calls him the greatest captain of men of his time. Macaulay thought he had a genius for government not inferior to that of Richelieu. Southey thought his the most influential mind of the century; Lecky, that his religious revival was of greater historical importance than all the splendid victories by land and sea under Pitt. He has been supposed to be the chief force that saved England from such a revolution as that of France. How could the book of such a man, printed in so many editions, fail to make more of a mark?

We are fortunate in having criticisms of Wesley's book by physicians, published in his lifetime, and at widely different periods after that. The first was by a man of prominence, Dr. W. Hawes, one of the founders of the Royal Humane Society. Hawes' work had the laudable object of preventing the public from being imposed on. He criticized many of the remedies for reasons that we should all agree on, and his criticisms probably had something to do with the absence from the later editions of many methods mentioned in the sixteenth, including the use of powdered toad, which Hawes thought suitable to the credulity of the frequenters of the foundry, and of a red-hot poker under the nose. He criticized Wesley's rather frequent use of wine as tending to encourage "dram-drinking," but he shows some faults of his own in asserting that poultices convert "benign hardnesses" into cancer, ascribed cancers to fermentation and thought that the use of cold baths would convert skin eruptions into internal inflammation or fever; that blisters on the feet from walking would dry up over night, and thought it ridiculous to try to relieve thirst in fever by drinking water. To those who compare the present with the good old days, it may seem interesting to find Hawes objecting to Wesley's "hardening" on the ground that "the state of the population is at too low an ebb for the lives of children to be sacrificed to the ignorance of old women or the indolence of nurses."

Hawes throws light on the conditions of the time when he states that fevers carry off one-third of the human species (Sydenham put the loss at two-thirds), and that in fevers the physician should see the patient twice daily.

Almost a century later Dr. John T. Plummer[1] in a keen but kindly article, based on the twenty-sixth American edition, criticized especially the superstitious remedies, like the guts of a serpent, for bites (omitted from the twenty-ninth edition), but excused them as characteristic of the age, and suggested that we might retain some equally futile remedies, so-called. He even thought that Wesley's use of saliva might be justified by Lehmann's chemical investigations, and mentioned the long use of burnt sponge, now known to contain iodin, as an example of correct empirical therapeutics.

Another and more recent criticism[2] appeared in the *British Medical Journal* as an unsigned article, and apparently, having been "tried on the dog" in England was published under the name of Burton G. Thomas,[3] M.D., in the *American Physician*.

This author thinks the work gives "evidence of a hiatus in the mind of Wesley, natural and inevitable in a theologian of that day, and not unfamiliar even in some of the theological intellects of the present." The article gives evidence of very loose reading and thinking and very little acquaintance with the practice of Wesley's time, but is interesting because it states that the cow dung poultice is still used in England, as it is, or was a few years ago, in certain parts of the United States.

It is clear that we must not compare Wesley's therapeutics with those of his most eminent contemporaries. He did not pretend to special knowledge, but even when we compare his methods with those of physicians, we find a good deal to admire or to excuse. He treated symptoms only, but so did his contemporaries, and if he conceived diseases as foreign entities invading the body, so did most of the physicians of his century. He schematized medicine far too much, but so did many illustrious leaders of medicine. Brown was bad enough, but Röschlaub, one of Brown's most noted followers, Professor at Bamberg, Landshut and Munich, thought all therapeutics so far as recoverable diseases are concerned, could be learned in thirty axioms. The ordinary followers of Brown must have been shocking. So far as symptomatic diagnosis is concerned this has lasted to our own day, for even if we have gone beyond such names as "dropsy" or "fever," there is still a general tendency to be satisfied with the main diagnosis, whether of an infection, like typhoid fever, or pneumonia, or a process like diabetes or gout, and to carry out a schematic treatment, with little or no effort at learning either the peculiar variety of the main disease or the precise anatomic and functional condition of all the important organs.

As to treatment, in general Wesley's was much better than that of his contemporaries, in the sense that though often ridiculous it was rarely harmful. The others, true to their conception of disease as the result or the cause of vicious humors, of acrid blood, of baneful concoctions or fermentations, devastated their patients with violent drugs, bled them to extremitus, salivated them, kept open sores running for weeks or months. Wesley's consumptive, living on milk and breathing into a hole in the turf every day, was infinitely better off than Morton's, and so with many others.

If we cannot censure him for doing harm, can we explain away his failure to improve the practice of

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1. Plummer, John T.: Nashville Jour. Med. and Surg., Oct. 4, 1858 (xv), p. 282.
2. Brit. Med. Jour., 1906, i, 987.
3. Thomas, Burton G.: American Physician, November, 1906, p. 295.

his time as he evidently hoped to do? This, I think, is not difficult. If both the moderate and sober words of Sydenham and Cheyne, the violent invectives of Gideon Harvey and Dover had so little effect on the abuses of the period, it was unlikely that one who had so many other prejudices to overcome as Wesley had, could do better. Even at the end of the century the keen and merciless criticism of Hahnemann had but little influence on the crude and barbarous therapeutics of the period. The reason for failure in all cases I take to be the same. All of these would-be reformers, in varying degrees, were hampered by errors of their own; errors that must have been obvious to clear-thinking contemporaries in or out of the profession. All thought about disease in the same way, and all were obliged to do so until the discoveries in anatomy, physiology and chemistry opened a new way of thinking. After the beginning was made in the biologic conception of disease, systems could no longer expect much consideration, no matter how brilliantly they were exploited. And still we can see how many useless mixtures, how many unnecessary drugs, lumber the books and shelves. How many new preparations, no more promising than Wesley's simples, are daily used by the hopeful but credulous profession! And while Wesley's remedies were for the most part harmless nauseants, cathartics, aromatics or demulcents, the newer remedies are likely to be habit-forming, blood-destroying or anaphylaxis-producing, or in other ways distinctly harmful. Modern methods have even enlarged the field of practice once met by Wesley's little book with its simple guide. Wholesale drug houses have dozens of clerks who receive basketfuls of letters from physicians asking for help in trying cases. The diagnosis is no more accurate than in the case of Wesley's reader. The drug clerk advises the first remedy in his list, and if that does not bring results, the next, and so on. Among the laity the belief in medicines as exorcisers of disease seems almost as firmly fixed as ever. The strange or obscure, the alleged inventions of ignorant or savage people, appeal to them more strongly than the rational measures of the skilled and educated. The doctrines of Still have appealed to many more people than have the candid and reasonable recommendations of Weir Mitchell.

Still more interesting is Wesley's relation to superstitious or occult methods. Wesley was a child of his age in many ways. He was able to see the rational features in the practice of the best men of his time, like Sydenham, Cheyne, Floyer and Fothergill, but at the same time he was saturated with superstitions that go back to the earliest legends of medicine or that can be found among the most primitive races.

Thoroughly as he believed in some mystic forms of treatment, and firmly as he believed in the supernatural as he viewed it, he did not mix his medicine with religion, for his recommendation of prayer in treatment is very mild. It remained for the age of the greatest discoveries in natural science, and the period of the most rampant materialism and so-called rationalism, to develop the most varied and extreme methods of superstitious therapeutics, and to revive, without improvement, under the name of "New Thought," methods familiar thousands of years ago.

Preventogram.—Why pay for oxygen when you can get unlimited supplies by simply opening the windows?—*Buffalo Sanitary Bull.*

THE COMPARATIVE NUTRIENT VALUE OF COD LIVER OIL AND COD LIVER OIL CORDIALS

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For a long time cod liver oil has been recognized as an easily assimilable nutrient and reconstructive and of special value in wasting diseases. The unpalatability of the oil, however, has led to various devices to make it tasteless or to render it more acceptable to the stomach. Emulsions containing the oil in mixture with other substances were exploited, and doubtless served a useful purpose. The oil, however, but imperfectly concealed, was still disagreeable to many, and other preparations began to appear on the market, which claimed to retain the therapeutic virtues of cod liver oil without its disagreeable characteristics. This practice has been carried so far that now we find for sale cod liver oil preparations from which the oil has been removed in its entirety, and only the name remains. Certain of these products claim to "represent" the oil and to retain all its virtues; others are said to contain oil, while still others claim "all the valuable constituents" of the oil without the oil itself.

In the past, cod liver oil has been considered a food rather than a medicine, and its value attributed to the easily digestible and metabolizable oil it contains. This position, however, has been disputed. By some its therapeutic value has been attributed to the small amount of iodin present in the oil, but in recent years the suggestion has been made that its special potency depends on its peculiar fatty acids. In this connection the U. S. Dispensatory[1] says:

> Other oleaginous substances, certainly not less nutritious, have not been equally efficient, though taken in much larger quantities. If this be the true explanation, persons living chiefly on milk, which abounds in oil, or on fat pork, ought to show a special exemption from scrofulous complaints. The probability appears to us to be that, in consequence of some peculiar principle or principles it contains, it exercises a stimulant and alterative influence on the processes of assimilation and nutrition, thereby aiding in the production of healthy tissue.

Indeed, Osborne and Mendel[2] have shown in their experiments on albino rats that by substituting cod liver oil for a portion of the lard in their standard diets, growth was resumed after failure on foods containing commercial lard alone as the source of fat. Similar results were secured with butter-fat and egg yolk fat.

In the light of the theories advanced for the therapeutic value of cod liver oil, and the results secured by Osborne and Mendel with the oil itself, it seemed a profitable study to examine some of the prominent "oilless" preparations on the market to determine whether or not the claims made for them as nutrients were justified. Certain of the so-called cod liver oil preparations are termed "extracts" of cod liver oil, and are not made from the oil, but from the cod livers instead. As has been well said,[3] "They are preparations, which, if honestly made, might be worthy of trial, but they are improperly called 'extracts' of cod liver oil, since they do not contain the fat, which is the active constituent of the oil, but the extractives from the liver, which may or may not possess therapeutic virtues. So far as we know, however, no satisfactory evidence is forthcoming to indicate that such extractives have any therapeutic value."

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[1] U. S. Dispensatory, Ed. 19, p. 860.
[2] Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1914, xvii, 401.
[3] Fraud and Deception Connected with So-Called Cod Liver Oil Preparations, The Journal A. M. A., Oct. 13, 1906, p. 1207.

It was with preparations of this class that our experiments were made. Four of the more extensively advertised brands were selected, as they represent rather distinct types of this class of products, as the following claims of their labels will show:

Hagee's Cordial of the Extract of Cod Liver Oil, Compound.—"Tonic, stimulant, alterative, reconstructive, nutritive and digestive." "Each fluid ounce represents the extract obtainable from ⅓ fluid ounce of cod liver oil (the fatty portion being eliminated), 6 grs. calcium hypophosphite, 3 grs. sodium hypophosphite, ½ gr. salicylic acid (made from oil wintergreen), with glycerine and aromatics."

Vinol.—"The modern tonic reconstructor containing the medicinal extractives of fresh cod livers with peptonate of iron." "When the blood is poor, when more fresh blood is needed, when the weak need strength, when the throat and lungs are affected, TAKE VINOL."

Wampole's Perfected and Tasteless Preparation of an Extract of Cod Liver.—"Contains a solution of an extractive obtainable from fresh cod livers, the oily or fatty portion being afterward eliminated. This extractive is combined with liquid extract of malt, fluid extract of wild cherry and compound syrup of hypophosphites (containing calcium, sodium, potassium, iron, manganese, quinine and strychnine)."

Waterbury's Compound, Plain.—"Made from cod liver oil, digestive ferments, malt extract unfermented, hypophosphites comp. special, ext. cherry, eucalyptus, aromatics, etc."

Thus we have represented in our experiments an "extract" with hypophosphites, one with peptonate of iron, one with malt extract and hypophosphites and the alkaloids quinin and strychnin, and one with malt extract and hypophosphites without alkaloids.

In order to prepare a dry ration of suitable keeping properties, it was necessary to remove the alcohol and water from the various preparations. This was done by evaporation under reduced pressure at from 40 to 55 C. (104 to 131 F.). In the case of Hagee's Cordial it was claimed that one fluidounce of the preparation represented ⅓ fluidounce of cod liver oil, and in the subsequent substitution for cod liver oil in our rations, this ratio was used for all four products.

The composition of the four preparations was as shown in Table 1.

It is seen that these are very dissimilar preparations, the alcohol ranging from 7.50 to 18.69 per cent., the extract from 8.72 to 39.53 per cent. (10.81 of the 13.18 gm. of extract in Hagee's Cordial being glycerin), the ash from 0.305 to 1.967 per cent., the reducing sugars from 1.35 to 17.10 per cent., and the glycerin from a trace to 10.81 per cent. Wampole's contained quinin and strychnin, the others no alkaloids; salicylates were present in all but Wampole's; saccharin in Hagee's. The Pettenkoffer test for biliary acids gave a negative result in Hagee's and Wampole's; in Vinol and Waterbury's, small amounts of fatty acids were obtained, amounting to 0.016 and 0.032 gm. per hundred c.c., respectively, quite insignificant amounts.

The feeding experiments were made on albino rats of both sexes, which were placed, when about 6 weeks old, on a standard ration, No. 7, and after several months, when a failure to maintain weight was indicated,[4] an amount of dealcoholized cordial extract equivalent to 18 per cent. of cod liver oil was substituted for a portion of the lard, the cordial extract later being replaced by an equivalent amount of cod liver oil.

TABLE 1.—ANALYSES OF COD LIVER OIL PREPARATIONS

	Hagee	Vinol	Wampole's	Waterbury's
Specific gravity at 15.6 C.	1.0405	1.0111	1.1305	1.0499
Alcohol by volume	7.50	18.69	16.59	11.25
Extract, gm. per 100 c c.	13.18*	8.72	39.53	16.78
Ash, gm. per 100 c.c.	1.967	0.885	0.305	0.673
Phosphoric acid, gm. per 100 c.c.	1.363	0.090	0.158	0 092
Sodium oxid, gm. per 100 c.c.	Present	0.194	Present	0.115
Potassium oxid, gm. per 100 c.c.	—	0.141	Present	0 045
Calcium oxid, gm. per 100 c.c.	Present	Trace	Present	0.014
Iron oxid, gm. per 100 c.c.	Present	0.240	Present	Trace
Manganese oxid	None	—	Present	—
Nitrogen, gm. per 100 c.c.	—	0.350	—	0.178
Reducing sugars, as dextrose, gm. per 100 c.c.	1.35	3.32	17.10	9.72
Glycerin, gm. per 100 c.c.	10.81	0.323	—	0.812
Ether-chloroform extract, acid, gm. per 100 c.c.	0.142	0.187	0.054	0.713
Ether-chloroform extract, alkaline, gm. per 100 c.c.	0.004	0.010	0.003	0.006
Fatty acids, gm. per 100 c.c.	None	0.016	None	0.032
Salicylic acid, gm. per 100 c.c.	Present	0.095	—	0.546
Saccharin	Present	—	—	—
Alkaloids	None	None	Quinin Strychnin	None
Acidity, c.c N/10 NaOH per 100 c.c.	39.4	55.0	23.0	28.5
Polarization, direct	—0.6†	—2.1‡	—1.6†	+3.7‡
Polarization, invert.	—0.22†	—2.2‡	—3.08†	+3.85‡

* 10.81 gm. glycerin. † At 19 C. ‡ At 23.5 C. A minus (—) sign indicates that the determination was not made.

THE RATIONS USED

The rations fed to the rats were as indicated in Table 2.

TABLE 2.—RATIONS FED THE RATS

RATION 7 (STANDARD)	Per cent.
Corn gluten	25 3
Milk albumin	11.0
Commercial protein-free milk	23.3
Corn-starch	10.7
Lard	29.7

RATION 8 (HAGEE'S)	Per cent.
Corn gluten	25.5
Milk albumin	11.0
Commercial protein-free milk	23.5
Corn-starch	10.5
Lard	17.7
Hagee's (extract)	11.8

RATION 10 (VINOL)	
Corn gluten	25.5
Milk albumin	11.0
Commercial protein-free milk	23.5
Corn-starch	10.5
Lard	23.9
Vinol (extract)	5.6

RATION 11 (WATERBURY)	
Corn gluten	25.5
Milk albumin	11.0
Commercial protein-free milk	23.5
Corn-starch	10.5
Lard	17.6
Waterbury (extract)	11.9

RATION 12 (WAMPOLE'S)	
Corn gluten	25.5
Milk albumin	11.0
Commercial protein-free milk	23.5
Corn-starch	10.5
Lard	4.1
Wampole (extract)	25.4

RATION 13 (COD LIVER OIL)	
Corn gluten	25.5
Milk albumin	11.0
Commercial protein-free milk	23.5
Corn-starch	14.0
Lard	8.0
Cod liver oil	18.0

The corn gluten contained 7.69 water, 0.14 ash, 6.63 nitrogen, 4.24 nitrogen soluble in hot alcohol (= zein 28.85), 12.63 other proteins by difference,

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[4] Osborne and Mendel have shown (Jour. Biol. Chem., 1913, xv, 311) that mixtures of purified protein, lard, starch and protein-free milk have been singularly efficient for a time in promoting growth of young rats. In from sixty to 100 days or more, however, normal growth stops; the animals may remain at constant weight for a few days, or grow very slowly, and then suddenly decline and die unless a change is made in the diet. The substitution of butter-fat, egg yolk fat, or cod liver oil for a portion of the lard in the ration, in the experiments of these authorities, brought prompt recovery and continuation of normal growth.

41.48 total protein and 4.83 per cent. fat. The milk albumin contained 4.69 water, 22.01 ash, 8.85 nitrogen (= 56.46 protein), 1.03 fat and 18.81 per cent. lactose. The commercial protein-free milk was crude milk-sugar. Before use in the rations, the corn gluten was thoroughly extracted with ether to remove the fat.

In all, nineteen rats were used, five each with Vinol and Wampole's, six with Hagee's, and three with Waterbury's. Rats 19 and 27 on Hagee's, Rat 31 on Vinol and Rat 32 on Wampole's showed certain abnormalities during the experiment, and are excluded from the present discussion.

The rats at first were weighed weekly, but later twice a week, or oftener, when a marked change in weight seemed imminent. It is unnecessary to give the detailed weights of the rats when on the standard ration, especially as in some cases they were kept on this ration for over four months. Only enough of the weighings on the standard ration will be given to show the steady increase in weight of the rats, until the approach of a change in the ration, when the semiweekly weighings will be shown. In general no change in the ration was made until two successive weighings showed a distinct loss of weight. There were certain exceptions to this rule which will be noted in the proper place.

HAGEE'S CORDIAL

The results secured with Hagee's Cordial are given in Table 3.

TABLE 3.—RATION 7 (STANDARD), RATION 8 (HAGEE), RATION 13 (COD LIVER OIL)*

Rat 28 ♂		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
37	48	44.5
51	77	58.4
65	110	64.2
79	134	73.7
93	154	100.3
107	169	129.2
121	185	153.5
135	198	165.0
149	204	180.0
152	205	182.7
156	207	180.7
159	209	180.6
Hagee Ration		
163	212	179.7
166	214	165.2
Cod Liver Oil Ration		
170	218	160.0
177	223	167.2
184	227	150.0
193	239	157.0
201	245	171.3
208	251	190.2
215	259	201.1
219	263	206.6

Rat 29 ♂		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
37	48	38.7
51	77	54.0
65	110	61.5
79	134	63.8
93	154	79.9
107	169	94.8
114	176	106.3
117	180	104.4
121	185	103.5
Hagee Ration		
124	188	95.4
128	192	91.1
Cod Liver Oil Ration		
131	194	102.1
138	201	114.8
145	203	111.7
152	205	116.6
159	209	140.6
166	214	150.5
173	220	157.4
177	227	165.4

Rat 33 ♀		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
37	49	38.7
51	74	57.0
65	95	71.5
79	104	86.3
93	116	111.0
107	123	116.4
121	133	130.0
124	134	127.8
128	137	131.0
131	138	131.2
Hagee Ration		
135	141	131.7
138	144	132.2
142	147	130.4
145	148	130.0
Cod Liver Oil Ration		
152	150	147.9
159	152	156.8
166	155	157.7
173	159	157.1
180	160	157.1

Rat 34 ♀		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
37	49	39.1
51	74	61.5
65	95	79.2
79	104	84.2
93	116	116.0
107	123	133.3
121	133	149.5
135	141	159.6
142	147	159.4
146	148	163.7
149	149	162.3
152	150	161.8
Hagee Ration		
156	151	154.7
159	152	154.6
Cod Liver Oil Ration		
166	155	159.6
173	159	159.8
180	160	163.0
187	163	157.6
193	165	158.6
198	167	159.5
205	168	165.1
212	169	163.9
219	170	168.2

* In the tables, ♂ denotes male, and ♀ female.

None of the four rats did well on Hagee's Cordial; in fact, they lost from 1.2 to 15.4 gm. during feeding periods of from seven to fourteen days. With Rat 33 there was a slight temporary gain of 1 gm. during one week, where normally the gain should have been 6 gm., but even this small gain was overcome during the next week by a loss of 2.2 gm. The rats failed so quickly when put on Hagee's Cordial that in two cases the animals did not recover even when put on the full cod liver oil ration. Our experience with these two rats prompted us not to allow the other rats to remain too long on the Hagee ration, and the shift in diet was made somewhat sooner than would normally have been the case; in fact, with Rat 33 a slight gain in weight was evidenced just before the shift was made.

The following tabulation summarizes the results obtained by feeding the Hagee ration:

Rat 28	in 7 days	lost 15.4 gm.,	or	8.5 per cent.	of its weight
Rat 29	in 7 days	lost 12.4 gm.,	or	12.0 per cent.	of its weight
Rat 33	in 14 days	lost 1.2 gm.,	or	0.9 per cent.	of its weight
Rat 34	in 7 days	lost 7.2 gm.,	or	4.5 per cent.	of its weight

The gains made when cod liver oil was substituted for Hagee's Cordial were as follows:

Rat 28	in 53 days	gained 41.4 gm.,	or	25.1 per cent.	of its weight
Rat 29	in 49 days	gained 74.3 gm.,	or	81.6 per cent.	of its weight
Rat 33	in 35 days	gained 27.1 gm.,	or	20.8 per cent.	of its weight
Rat 34	in 60 days	gained 13.6 gm.,	or	8.8 per cent.	of its weight

Inasmuch as the feeding periods were of different duration, the effect of the two rations is better shown by a comparison of the normal gain the animals should have made during the feeding periods with that actually obtained. This is shown in Table 4.

TABLE 4.—COMPARISON OF NORMAL GAIN WITH ACTUAL GAIN ON HAGEE RATION AND COD LIVER OIL

Rat	Hagee Ration		Cod Liver Oil Ration	
	Normal Gain, Gm.	Actual Gain, Gm.	Normal Gain, Gm.	Actual Gain, Gm.
28 ♂	5	—15.4	49	41.4
29 ♂	7	—12.4	35	74.3
33 ♀	10	— 1.2	12	27.1
34 ♀	2	— 7.2	18	13.6

In other words, the four rats during the *Hagee* period, instead of gaining the normal 24 gm., actually lost 36.2 gm., while during the cod liver oil period instead of gaining 114 gm., they gained 156.4 gm.

The inferiority of Hagee's Cordial as a reconstructive and a nutrient compared with ordinary cod liver oil is apparent.

VINOL

The results secured with Vinol are given in Table 5.

TABLE 5.—RATION 7 (STANDARD), RATION 10 (VINOL), RATION 13 (COD LIVER OIL)

Rat 17 ♀		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
41	55	46.7
55	81	64.5
69	98	79.5
83	107	87.6
97	118	105.7
111	126	122.1
125	135	132.1
128	137	135.4
132	139	135.2
Vinol Ration		
135	141	136.1
139	145	140.0
142	147	141.5
146	148	140.8
149	149	140.3
Cod Liver Oil Ration		
153	151	140.9
160	152	158.8
167	156	163.7
174	159	167.3

Rat 18 ♀		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
41	55	49.5
55	81	69.3
69	98	87.2
83	107	97.3
97	118	119.7
111	126	135.8
125	135	151.0
128	137	151.6
132	139	151.2
Vinol Ration		
135	141	151.7
139	145	155.9
146	148	159.0
153	151	156.7
154	151	157.2
Cod Liver Oil Ration		
156	152	160.9
160	152	172.6
167	156	174.6
174	159	175.1

Rat 21 ♀		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
41	55	52.7
55	81	73.9
69	98	83.8
83	107	90.4
97	118	106.8
111	126	117.0
125	135	129.5
139	145	137.9
142	147	136.4
146	148	134.3
149	149	138.0
Vinol Ration		
156	151	140.0
163	153	139.5
170	158	138.7
177	160	139.7
184	162	130.0
Cod Liver Oil Ration		
188	164	124.1
191	165	114.1
197	167	105.3
205	168	108.6
212	169	119.2
219	170	135.6
223	172	136.7

Rat 30 ♂		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
37	48	37.5
51	77	46.8
65	110	57.2
79	134	63.1
93	154	85.5
107	169	112.1
121	185	139.7
135	198	160.6
145	203	170.0
149	204	169.4
152	205	170.5
Vinol Ration		
156	207	167.8
159	209	168.3
163	212	164.6
Cod Liver Oil Ration		
166	214	179.2
170	218	188.8
173	220	189.8
177	223	198.8
180	226	200.5

The four rats fed the Vinol ration gave somewhat more favorable results than those fed Hagee's Cordial, two showing slight gains in weight. Rat 21, however, was apparently weakened by Vinol, as it required thirty-five days of feeding the cod liver oil ration to bring it back to the weight shown prior to the Vinol feeding.

The following tabulation summarizes the results obtained by feeding the Vinol ration:

Rat 17 in 17 days gained 5.1 gm., or 3.8 per cent. of its weight
Rat 18 in 22 days gained 6.0 gm., or 4.0 per cent. of its weight
Rat 21 in 35 days lost 8.0 gm., or 5.8 per cent. of its weight
Rat 30 in 11 days lost 5.9 gm., or 3.5 per cent. of its weight

The gains made when cod liver oil was substituted for Vinol were as follows:

Rat 17 in 25 days gained 27.0 gm., or 19.9 per cent. of its weight
Rat 18 in 20 days gained 17.9 gm., or 11.4 per cent. of its weight
Rat 21 in 39 days gained 6.7 gm., or 5.2 per cent. of its weight
Rat 30 in 17 days gained 35.9 gm., or 21.8 per cent. of its weight

The feeding periods during which Vinol and cod liver oil were supplied to the rats were more nearly equal than with the Hagee ration, and a direct comparison is possible. However, Table 6 shows a comparison between the normal and actual gains of the animals for the different feeding periods.

TABLE 6.—COMPARISON OF NORMAL GAIN WITH ACTUAL GAIN ON VINOL RATION AND COD LIVER OIL

Rat	Vinol Ration		Cod Liver Oil Ration	
	Normal Gain, Gm.	Actual Gain, Gm.	Normal Gain, Gm.	Actual Gain, Gm.
17 ♀	10	3.8	10	27.0
18 ♀	12	4.0	8	17.9
21 ♀	13	—5.8	10	6.7
30 ♂	7	—3.5	14	35.9

TABLE 7.—RATION 7 (STANDARD), RATION 12 (WAMPOLE), RATION 13 (COD LIVER OIL)

Rat 26 ♀		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
41	55	54.1
55	81	71.3
69	98	84.2
83	107	92.8
97	118	121.1
111	126	141.0
125	135	154.2
128	137	156.8
132	139	157.0
Wampole Ration		
135	141	151.3
139	145	154.5
142	147	160.3
146	148	165.0
149	149	160.0
150	150	160.0
Cod Liver Oil Ration		
156	152	172.8
163	153	178.6
170	158	191.3
177	160	193.8

Rat 35 ♂		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
47	68	69.3
61	101	79.1
75	129	96.5
89	149	132.8
103	163	162.8
117	180	191.0
131	195	208.9
145	203	211.0
148	204	213.3
152	205	211.2
155	207	209.3
Wampole Ration		
162	211	220.0
169	217	227.6
176	223	235.0
183	227	230.1
189	231	228.9
192	238	222.3
194	240	223.0
Cod Liver Oil Ration		
201	245	239.7
204	248	244.7
208	251	233.5
211	255	229.1

Rat 36 ♂		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
47	68	60.0
61	101	66.3
75	129	84.0
89	149	123.5
103	163	157.6
117	180	180.3
131	195	190.0
134	197	197.6
138	200	196.2
141	202	196.2
Wampole Ration		
148	204	202.9
155	207	210.1
162	211	223.4
169	217	227.6
176	223	214.1
180	226	196.7
Cod Liver Oil Ration		
183	227	212.6
189	231	214.3
197	242	212.2
204	248	214.9
211	255	219.0
215	259	219.8

Rat 37 ♀		
	Weight	
Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration		
47	67	57.3
61	90	68.3
75	102	80.3
89	113	99.3
103	121	114.8
117	131	129.7
131	139	137.8
145	148	140.0
148	149	142.8
152	150	143.0
155	151	139.8
Wampole Ration		
162	153	150.0
169	157	156.7
176	159	160.0
183	161	163.3
189	164	171.7
192	165	169.9
194	166	174.0
Cod Liver Oil Ration		
201	168	190.5
208	169	190.7
215	170	192.5

In other words, the four rats instead of gaining the normal 42 gm. during the Vinol period, actually showed a net loss of 1.5 gm., while during the cod liver oil period instead of gaining 42 gm., they gained 87.5 gm.

The foregoing results show the superiority of ordinary cod liver oil over Vinol, "the modern tonic reconstructor," and that "when more flesh is needed, when the weak need strength," these results are much more effectively secured with the oil itself.

WAMPOLE'S PREPARATION

The results secured with Wampole's Preparation are given in Table 7.

All of the four rats fed the Wampole Preparation showed gains in weight although in two cases the gains were quite insignificant. Rat 36 showed substantial gains during the period, but during the last eleven days suddenly lost 30.9 gm., and was then shifted to the cod liver oil ration, when in three days it recovered 15.9 gm. of this loss. Rat 37 was shifted to the cod liver oil ration before two distinct failures to gain had been shown under the Wampole ration, but in the first week under cod liver oil it gained 16.5 gm., more than it had gained in eighteen days with the Wampole ration. The Wampole Preparation showed a much greater ability to sustain or gain weight than either Hagee's or Vinol.

The following tabulation summarizes the results obtained by feeding the Wampole ration:

Rat 26 in 18 days gained 3.0 gm., or 1.9 per cent. of its weight
Rat 35 in 39 days gained 13.7 gm., or 6.5 per cent. of its weight
Rat 36 in 39 days gained 0.5 gm., or 0.3 per cent. of its weight
Rat 37 in 39 days gained 34.2 gm., or 24.5 per cent. of its weight

The gains made when cod liver oil was substituted for the Wampole Preparation were as follows:

Rat 26 in 27 days gained 33.8 gm., or 21.1 per cent. of its weight
Rat 35 in 17 days gained 6.1 gm., or 2.7 per cent. of its weight
Rat 36 in 35 days gained 23.1 gm., or 11.7 per cent. of its weight
Rat 37 in 21 days gained 18.5 gm., or 10.6 per cent. of its weight

The feeding periods during which the Wampole Preparation was given were considerably longer than those during which cod liver oil was fed. Table 8 shows a comparison between the normal and actual gains of the animals for the different feeding periods.

TABLE 8.—COMPARISON OF NORMAL GAIN WITH ACTUAL GAIN ON WAMPOLE RATION AND COD LIVER OIL

Rat	Wampole Ration		Cod Liver Oil Ration	
	Normal Gain, Gm.	Actual Gain, Gm.	Normal Gain, Gm.	Actual Gain, Gm.
26 ♀	11	3.0	10	33.8
35 ♂	33	13.7	15	6.1
36 ♂	24	0.5	33	23.1
37 ♀	15	34.2	4	18.5

In other words, the four rats on the Wampole ration gained 51.4 gm. instead of the normal 83 gm., while during the cod liver oil period they gained 81.5 gm. instead of the normal 62 gm.

It would appear that the malt extract or the sugar present in Wampole's Preparation had increased its nutritive value over Hagee's Cordial and Vinol, *but even with this addition it fell far behind ordinary cod liver oil as a source of nutriment.*

WATERBURY'S COMPOUND

The results secured with Waterbury's Compound are given in Table 9.

Two of the rats when fed the Waterbury ration showed slight gains in weight, but the third lost 13.4 gm. in two weeks. With none of these rats was a marked failure secured on the standard ration at the time of the shift to the Waterbury ration. They had rather ceased to grow instead of showing a distinct loss in weight. Rat 22 had gained but 2.6 gm. in seven days, Rats 23 only 2.2 gm. in eight days, and Rat 25 only 0.6 gm. in ten days, whereas they should have gained 4 gm. in each case. Likewise no very distinct failure on the Waterbury ration had been shown when the rats were changed to cod liver oil, although the good effect of the change was noticeable at once in gains of 7.8, 10.3 and 28.1 gm., respectively, in one week. In other words, the rats in one week gained on cod liver oil much more than they did in the full feeding periods of from fourteen to thirty days on the Waterbury ration.

TABLE 9.—RATION 7 (STANDARD), RATION 11 (WATERBURY), RATION 13 (COD LIVER OIL)

Rat 22 ♀		
Age, Days	Normal Weight Gm.	Actual Weight Gm.
Standard Ration		
41	55	58.7
55	81	78.9
69	98	96.1
83	107	103.5
97	118	120.5
111	126	130.2
125	135	140.7
127	136	140.0
131	138	141.0
132	139	143.3
Waterbury Ration		
134	141	135.8
138	144	131.1
141	146	134.4
145	148	133.5
148	149	135.0
152	150	140.6
155	151	145.4
159	152	146.5
162	153	147.9
Cod Liver Oil Ration		
169	157	155.7
176	160	160.3
183	161	155.4
190	164	158.6
196	166	158.6
201	168	158.1
208	169	162.0
215	170	161.4
222	170	163.5

Rat 23 ♀		
Age, Days	Normal Weight Gm.	Actual Weight Gm.
Standard Ration		
40	54	46.6
54	79	63.9
68	97	79.7
82	107	99.2
96	118	112.3
110	125	121.7
124	135	134.0
127	136	137.5
131	138	136.0
132	139	136.2
Waterbury Ration		
134	141	131.0
138	144	129.3
141	146	134.4
145	148	134.2
148	149	138.5
152	150	140.0
155	151	142.2
159	152	145.2
162	153	145.3
Cod Liver Oil Ration		
169	157	155.0
176	160	159.9
183	161	159.9
190	164	160 0
196	166	161.6
204	168	164.0
211	169	165.9
218	170	172.1

Rat 25 ♀		
Age, Days	Normal Weight Gm.	Actual Weight Gm.
Standard Ration		
41	55	52.7
55	81	73.1
69	98	89.3
83	107	98.5
97	118	112.0
111	126	126.6
125	135	135.0
139	145	143.6
142	147	145.0
146	148	144.2
149	149	144.2
Waterbury Ration		
153	151	129.9
156	152	134.9
160	152	135.4
163	153	130.8
Cod Liver Oil Ration		
167	156	152.3
170	158	158.9
174	159	171.7
177	160	174.4
181	161	175.8

The following tabulation summarizes the results obtained by feeding the Waterbury ration:

Rat 22 in 30 days gained 4.6 gm., or 3.2 per cent. of its weight
Rat 23 in 30 days gained 9.1 gm., or 6.7 per cent. of its weight
Rat 25 in 14 days lost 13.4 gm., or 9.3 per cent. of its weight

The gains when cod liver oil was substituted for the Waterbury Compound were as follows:

Rat 22 in 60 days gained 15.6 gm., or 10.5 per cent. of its weight
Rat 23 in 56 days gained 26.8 gm., or 18.4 per cent. of its weight
Rat 25 in 18 days gained 45.0 gm., or 34.4 per cent. of its weight

Table 10 shows a comparison between the normal and actual gains of the animals for the different feeding periods.

TABLE 10.—COMPARISON OF NORMAL GAIN WITH ACTUAL GAIN ON WATERBURY RATION AND COD LIVER OIL

Rat	Waterbury Ration		Cod Liver Oil Ration	
	Normal Gain, Gm.	Actual Gain, Gm.	Normal Gain, Gm.	Actual Gain, Gm.
22 ♀	14	4.6	17	15.6
23 ♀	14	9.1	17	26.8
25 ♀	4	−13.4	8	45.0

In other words, the three rats on the Waterbury ration showed a net gain of 0.3 gm. instead of the normal 32 gm., while during the cod liver oil period they gained 87.4 gm. instead of the normal 42 gm.

Even the presence of malt extract failed to increase appreciably the nutritive value of the Waterbury Compound, cod liver oil again showing a very marked superiority as a source of nutriment.

SUMMARY

Table 11 gives a summary of the actual gains of the fifteen rats on the four rations, compared with the gains shown by cod liver oil and those shown by normal rats at the same period of their life history.

TABLE 11.—SUMMARY OF RESULTS*

Rations	Total Normal Gain, Gm.	Total Actual Gain, Gm.	Average Normal Gain, Gm.	Average Actual Gain, Gm.
Hagee ration	24	−36.2	6	−9.1
Cod liver oil ration	114	156.4	28.5	39.1
Vinol ration	42	−1.5	10.5	−0.4
Cod liver oil ration	42	87.5	10.5	21.9
Wampole ration	83	51.4	20.8	12.9
Cod liver oil ration	62	81.5	15.5	20.4
Waterbury ration	32	0.3	10.7	0.1
Cod liver oil ration	42	87.4	14	29.1

* In this table are given the totals and averages of the figures already presented in Tables 4, 6, 8 and 10.

In considering the effect of these preparations as general medicines, their alcohol content must not be overlooked. Hagee's Cordial contains 7.50 per cent. of alcohol by volume, Vinol 18.60 per cent., Wampole's Preparation 16.59 per cent., and Waterbury's Compound 11.25 per cent. Full strength whisky contains 50 per cent. of alcohol by volume. By following the doses prescribed by the manufacturers of these preparations, the user would consume daily the following equivalents of full strength whisky:

In Hagee's Cordial..........	0.24 fluidounce
In Vinol....................	0.8 fluidounce
In Wampole's Preparation...	0.7 fluidounce
In Waterbury's Compound...	0.6 fluidounce

These amounts of alcohol are by no means negligible and doubtless explain to a considerable extent the source of the alleged tonic virtues of these preparations.

The results of the experiments may be summarized as follows:

Hagee's Cordial failed to sustain rats during periods of seven and fourteen days, the rats showing a loss in weight of 36.2 gm., instead of the normal gain of 24 gm.

Vinol in two cases sustained and in two cases failed to sustain growth during periods of from eleven to thirty-five days, the net loss in weight of the four rats being 1.5 gm., instead of the normal gain of 42 gm.

Wampole's Preparation in three cases sustained and in one case promoted growth in rats during periods of eighteen and thirty-nine days, showing, however, only 51.4 gm. gain in weight instead of the normal 83 gm.

Waterbury's Compound in two cases sustained and in one case failed to sustain rats during periods of fourteen and thirty days, the net gain in weight, however, being but 0.3 gm. instead of the normal 32 gm.

Cod liver oil showed a gain of 42.4 gm. over the normal, while with the same rats Hagee's Cordial showed a loss of 60.2 gm. Cod liver oil showed a gain of 45.5 gm. over the normal, while with the same rats Vinol showed a net loss of 43.5 gm. Cod liver oil showed a gain of 19.5 gm. over the normal, while with the same rats Wampole's Preparation showed a loss of 31.6 gm. Cod liver oil showed a gain of 45.4 gm. over the normal, while with the same rats Waterbury's Compound showed a net loss of 31.7 gm.

Not only did cod liver oil show a marked superiority as a source of nutriment over Hagee's Cordial, Vinol, Wampole's Preparation and Waterbury's Compound, but it also showed a remarkable reconstructive and recuperative power in its ability to enable rats to gain weight rapidly and steadily after having suffered from a deficiency in nutriment when fed the four preparations named above.

I wish to express my appreciation of the courtesies extended to me by my colleagues, Dr. T. B. Osborne, Prof. L. B. Mendel, Dr. A. J. Wakeman and Miss Edna L. Ferry in conducting these experiments. To Mr. Hugo Lange my thanks are also due for his efficient assistance in the care, feeding and weighing of the animals.

SYMPTOMS AND SIGNS OF GASTRIC CANCER: AN ANALYSIS OF 712 CONSECUTIVE OPERATIVELY AND PATHOLOGICALLY PROVED CASES *

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The material forming the basis of this report was obtained from my records of cases at the Mayo Clinic and my service at Augustana Hospital, Chicago. Of the 712 cases studied, all had been operatively and pathologically proved to be gastric cancer. Doubtful cases were excluded.

Sex.—The sex ratio was approximately that of gastric ulcer; namely, 483 males and 229 females, or 2.1 to 1.

Age.—While instances were recorded at as low as 20 years, the age of more than three-fourths of the patients ranged between the fifth and the eighth decades.

Etiologic Factors.—A family or blood-relationship history was proved in 9.4 per cent. of cases. A history of trauma was demonstrated in 3.1 per cent. of instances. In 2.2 per cent. the trauma appeared to precipitate symptoms.

With respect to *definite symptomatology*, it is well to admit here that 1.9 per cent. of cases gave absolutely no symptoms pointing to our clinical conception of gastric cancer. In such instances, exploratory operation or post-mortem examination gave the diagnosis.

Another appropriate admission is that we have no proved clinical procedure, other than history taking, which enables us to make early diagnosis of gastric cancer. Our so-called "early diagnoses" are usually lucky guesses, or are incidents in gastric exploration. The only dependable early diagnosis is made after laparotomy by a capable surgical pathologist by means of sections of tissue stained and examined under high power.

Information obtained by means of the Roentgen ray, by the estimation of the formol index, by the Wolff-Junghans' test or by the edestin digestion test, sometimes is of aid in *excluding cancer* in its early stage, but is of relatively little value in determining for us the presence of the earliest type of cancer—the cancer which we can honestly say is surgically curable.

It is to be more generally realized as men make tabulations of cases and then study them with liberal minds, that in proved cancer cases we have clinically at least three types of happenings leading up to a diagnosis of cancer. My study indicates that the following is the order of their relative incidence: 1. A symptom-complex of two very *definite* and *different* stages: (a) gastric disturbance, non-malignant and generally chronic; (b) gastric malfunction of malignant type. 2. A symptom-complex generally of a distinctly apparent, pernicious nature. 3. A group of cases in which there is usually evidence of years of gastric disturbance of irregular form, clinically, on which is superimposed a type of affection easily recognized as malignant.

Group 1.—Symptom-Complex Wherein Two Definite and Different Stages of Disease are Present.—This group furnishes 61 per cent. (434 cases) of my series. The average duration of all symptoms in the first stage was 11.7 years. The average duration of all symptoms in the second period is nearly 6 months. The two periods differ markedly. The anamnesis brings out very well the characteristic manifestations of each period. It is only by disengaging the patient from his present state and endeavoring definitely to locate his first departure from gastric health that one gets the key to the situation.

(a) In 61 per cent. of my proved cancer cases the total time of gastric complaint was somewhat over 12 years. For practically 11½ years the symptomatology was that which, clinically, we associate with chronic gastric ulcer. This first period was characterized by a long series of *attacks* of *"indigestion."* These attacks were associated with *epigastric distress or pain* in 88 per cent. of instances. In 85 per cent. the distress had some relation to the taking of food, the interval being longer or shorter according to the character of food taken. After a solid, mixed meal, the pain relief was longer, but when it recurred it was unmistakably more severe than when lighter forms of nourishment had been indulged in. Other forms of pain relief were alkalies, vomiting and diet. In 54 per cent. of instances the pain was referred to some part of the back. The appetite was usually limited by the fear of taking food and thus causing pain, or by the dread of bringing on bleeding. The food desire in this first stage was generally strong. Weight was lost in the attacks but gained between them. The average *weight loss* at this period was 17.4 pounds. *Constipation* was noted in 52 per cent. of instances. In 8 per cent. there was *diarrhea*. *Vomiting* occurred in 60 per cent. Rather more than 70 per cent. vomited in attacks. The time of vomiting was generally when distress was most marked. *Bleeding* (hematemesis or melena) was noted in 17 per cent. of instances during this stage. Of the whole number bleeding, 49 per cent. had bled at least two years prior to coming under observation. Of those who bled within the two year period over 65 per cent. were of the group with long previous history. In this group *anemia* was rarely marked, the average hemoglobin being toward 80 per cent. (Tallquist or Dare).

(b) If this class of cases pursues the above outlined history, the following may ensue: (1) Complete healing with stoppage of all symptoms; (2) typical chronic, *benign* gastric ulcer may result, or (3) gastric cancer may form, whereas previously there had been but a simple process. And no one can prognose in a given case presenting the clinical picture of gastric ulcer just *which kind of ulcer will heal or continue its benign course or which will ultimately form the suitable ground for cancer.* When we recall the pathology in these cases we can hardly blame ourselves for not catching the ulcer clinically in transition to cancer. All ulcers have about and in them hyperplastic tissue—tissue of defense and of healing. No one can tell in a given case when this hyperplasia will change over from the simple type to the malignant form. *Clinically* we are only warned by the appearance in a patient of a more or less continuous gastric disorder, where attacks had before been the rule. This may occur with or without the onset of pyloric obstruction. Where previously there was trouble in spells, with food relief, we note food aggravation, night distress, delayed vomiting, continuous presence of occult blood in the stools, anemia, cachexia, weight loss steadily maintained, weakness, and that peculiar, hopeless apathy exhibited by the fascias. Pain is rarely marked. Vague distress, "heavy feeling" or soreness in the epigastrium are the rule. Severe pain was observed in but 19 per cent. of our cases. It was of "colicky" nature in 14.2 per cent. Gassy and bloated sensations are generally constant and annoying.

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* Read at the Annual Session of the American Gastro-Enterological Association, Atlantic City, N. J., June 20, 1914.

In the second stage vomiting becomes more constant and is frequently in greater amount. The odor of the vomitus changes from distinctly sour or yeasty to cheesy or rancid. The color of the vomitus may exhibit little if any alteration. Inasmuch as more than 96 per cent. of my cases of gastric cancer were of the medullary type, oozing of blood was not uncommon. This pathologic state usually imparts a tan to deep brown color to vomitus or stomach extracts. In a little more than 17 per cent. of my 712 cases of gastric cancer was the vomitus of the classic "coffee ground" color. When it presented these characteristics the disease was far advanced in 84.2 per cent. of instances, and inoperable (so far as resection was concerned) in 77 per cent. The vomitus generally shows excess of thick, tenacious mucus, intermixed with sizable food remnants, frequently poorly chymified.

The stools rarely show macroscopic changes unless hemorrhage complicates, or liver, pancreas or adjacent hollow viscera become involved. On a milk diet, chemical tests for blood were positive in 83.4 per cent. of cases tested.

Group 2.—Symptom-Complex in Cases Clinically Malignant from the Inception of Gastric Malfunction.—Of the 712 cases of gastric cancer studied, 31.6 per cent. (225 cases) fell in this group. Careful history taking failed to elicit any clinical type of gastric complaint in these patients previous to an average time of 7.4 months before they came under observation. It should be emphasized that because no gastric disturbance had been previously noted, the conclusion should not be forced that such patients had had no gastric pathology previously. On the contrary, our postmortem or laparotomy findings of healed ulcers, and even of gastric new growths in individuals who had had no clinical pointings referable to gastric disease, should lead us to exercise caution in insisting when or how malignant processes in the stomach arise. The longest history of gastric symptoms in this group extended over nearly three and one-fourth years; the shortest barely three weeks.

In this group, which I have, from the pathologic view of the disease, styled "primary" gastric cancer, often it is extremely difficult to state from clinical presentings just when cancer began. Many so-called "primary" cancers have histories extending over weeks of time, where the symptom-complex closely approximates that which our present-day vogue associates with gastric ulcer of the continuously active and progressive form. The clinical picture is different, however, in one important respect. To the symptom-complex is added the manifestations of a malignant systemic poisoning. Instead of fairly definite "attacks" of ulcer type of dyspepsia, and that alone, the process is continuous and associated with progressive weakness, anemia, weight loss with cachexia, vomiting, changing rapidly to the rancid kind. Epigastric pain may be severe and prostrating at first, but later moderates in severity, is not relieved, but is aggravated, by food. It ultimately becomes continuous. I have frequently had strikingly impressed on me the "ulcer-features" clinically in primary gastric cancer. The hurried progression to definite malignancy has seemed to emphasize the necessity for separate recognition clinically of the term "chronicity" in its pathologic sense and in its time-factor sense, meaning weeks, months or years of duration of disease. In many of these primary gastric cancers the clinical gamut of "gastritis," "ulcer" and "cancer" may be run in a few months or even weeks. The whole course of the ailment is compressed into a sort of "tabloid," with regard to time, from which parts are readily segregated that closely approximate clinically those stretched over years exhibited by the great group of cancers forming my Group 1. With this state of affairs it is not to be wondered at that patients present themselves to the specialist or the surgeon only when tumor appears in the epigastrium or when hopeless cachexia warns of impending death.

While the above type of onset of primary gastric cancer is not infrequent, fully two-thirds of this group have more or less vague recollections of how they were affected gastrically before loss of appetite, weakness, mental inertia, abdominal distress, weight loss or epigastric "hardness," "knob" or "lump" warned them that something graver than "chronic indigestion" impended. Rarely is the transition from perfect gastric health to the present state a rapid one. Aversion to certain forms of food (as meat, milk, sweets or legumes) is an early manifestation. While the appetite for some viands may be keen, the aversion to others may be marked and, for the individual, radical. Eructations, often of extremely disagreeable taste, generally become pronounced early. Gassy distention is troublesome. Unexplained nausea, with or without general weakness, manifests itself. In 17 per cent. of my cases of this group diarrheic stools appeared without apparent cause. Vomiting may be the first symptom and its copiousness pronounced and alarming. It is generally bitter, sour, cheesy, or may be "rotten" in taste. Vomiting was observed in 79 per cent. of this class. In 64 per cent. of those vomiting it was a daily occurrence. In more than 80 per cent. "delayed" vomiting was exhibited.

Consideration of the types of cases making up my grouping of "primary" gastric cancer would be incomplete without mention of that class which I have styled "fulminant" cancer. In my series, there were thirteen instances (5.7 per cent.) in which the whole history of the affection up to the time of laparotomy covered less than seven weeks. The average age of these patients was 49 years.

In this class, profound cancer intoxication was marked from the time of the first departure from gastric health. In nine instances, fever rose as high as 102 F. The leukocytes averaged 14,800. Anemia was of lower grade than is usual in gastric cancer. The hemoglobin averaged 62 per cent. Weakness, weight loss, mental dulness, foul eructations and copious vomiting, gassy distention of the abdomen, epigastric soreness and the appearance of a rapidly enlarging supranavel mass occurred with astonishing speed. At operation the malignant process was always inoperable and perigastric lymphatic gland invasion extensive. The pathologic examinations of tissue removed showed cancer of the medullary type. The very rapid progression in this class of cases is not explained on the basis of the character of the tumor. I have shown that more than 96 per cent. of the cancers in my series were encephaloid, and yet rapid extension, such as I have outlined in this "fulminant" class, is not generally seen. The explanation for this in the varying resistance of the tissues of the individual patient, is not wholly satisfactory.

Group 3.—Gastric Malignancy Following Long History of Clinically Atypical Dyspepsia or Dyspepsia of Extragastric Origin.—This division comprises thirty-nine cases (5.5 per cent.). Two markedly different types of gastric malfunction are brought out by careful history taking. The clinical manifestations preceding those evidently malignant, extended over an average period of 9.4 years. The time covered by the supervening malignant stage averaged 5.9 months.

The clinical symptomatology of the affections when they were apparently of benign nature usually pointed to disease of the gall-bladder, appendix, large bowel or the pancreas. Seven patients of this class had had previous operations performed for anomaly of the appendix or gall-bladder or both. In four instances, gall-stones were found when laparotomy was made for the gastric cancer.

The clinical symptomatology when the malignant period supervened was in every way similar to that of the second period of cases making up Group 1 or of some portion of that exhibited by those in Group 2. The point to be emphasized is that after years of gastric departure from health, of atypic form, but evidently benign, so far as our clinical knowledge extends, the picture changed apparently abruptly to that of definite malignancy. It is only in those patients who had recently submitted to laparotomy for extragastric disease, however, that we can positively state that gastric ulcer or gastric cancer with atypic clinical manifestations had not existed for some time previously.

CONCLUSIONS

There is at present no known medical cure for gastric cancer. We have, as yet, no dependable means at our command for the recognition of the disease at a stage when we can positively state that the affection is surgically curable.

The cases of gastric cancer early diagnosed are those in which the clinical symptomatology is that which we associate with chronic gastric ulcer, and in which laparotomy has been urged on the suspicion that cancer might be present.

Where microscopists disagree regarding the diagnosis of sections of extirpated tissue, clinicians can scarcely be expected to make early diagnosis of gastric cancer before laparotomy.

The question for clinicians and pathologists to settle is not how many cancers had previous ulcer pointings, nor how frequently gastric ulcer changes from simple to malignant form, but just how one is to tell, clinically, in a given case of chronic gastric ulcer, what future course it is destined to pursue. This is the crux of the situation. At present we have no means of prognosing the future course of any gastric ulcer, acute or chronic. The life history of the affection seems to depend on certain unknown factors that are apparently highly individual.

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TORTICOLLIS *

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The following paper is a critical analysis of one hundred cases of distortion of the neck which were entered in the records of the Boston Children's Hospital as torticollis. This analysis has been made in comparison with the findings as reported in the literature of the subject. The cases have been taken from the records of the Children's Hospital in the order in which they applied for treatment.

Any deforming relation between the head and the neck in which the sternocleidomastoid muscle was chiefly involved has been considered as torticollis, whether of congenital or acquired origin.

The sternomastoid muscle has its origin from the sternal notch and the sternal end of the clavicle and is inserted into the mastoid process of the temporal bone. The sternal and the middle portion of the muscle receives its blood supply from the sternomastoid branch of the superior thyroid artery. Unilateral contraction of this muscle pulls the head toward the shoulder, but elevates the chin and turns it away from the side of the contracting muscle. The other muscles about the neck which are most frequently involved in conjunction with the sternomastoid muscle are the scalenus anticus, the trapezius and the splenius capitis. The trapezius causes a more backward inclination and rotation of the head. The splenius capitis bends the head backward and toward the contracting muscle, but does not turn the chin in the opposite direction. The nerve supply to the sternocleidomastoid muscle is from the spinal accessory. The external portion of this nerve leaves the skull by the jugular foramen and descends obliquely outward to the sternocleidomastoid muscle and disappears under the muscle at a distance of about 2 inches from the apex of the mastoid process.

The pathologic work done on torticollis has not been extensive. The most interesting and most valuable has given rise to certain theories, advanced to explain the causation of congenital torticollis.

Lüning and Schulthess[1] have published the details of an autopsy on a child 5 months old, delivered by forceps, who showed at the time of birth a swelling of the middle part of the sternomastoid muscle and this muscle was two-thirds of an inch shorter than the corresponding muscle. Haüsinger[2] reports a case in which one sternomastoid muscle was 9 cm. long and the other was only 6.5 cm. long. The pathologic study in the case of a child 14 days old in which a swelling the size of a hazelnut developed two days after birth showed microscopically a chronic interstitial myositis with no trace of blood pigment. This condition must have originated in intra-uterine life and a true hematoma could not have existed. A peculiar degeneration of muscle fiber is described by Volcker[3] as being seen after prolonged partial obstruction to the circulation to the muscle. The changes were seen in the microscopic study of some sternocleidomastoid muscle excised in cases of congenital torticollis. Nové-Josserand and Vianny[4] from careful study of the blood supply under consideration showed it to be of such a character that it could be easily interfered with. The middle and sternal portions of the muscle, as has been said before, are supplied by the sternomastoid branch of the superior thyroid artery. When this is ligatured, injection material thrown into the common carotid or subclavian vessels fails to appear in the areas of distribution of the arteries in question, showing that it has little or no anastomosis with its neighbor. Further, the circulation in this small muscular vessel is readily obstructed in certain positions of the head. Thus experimentally, in the bodies of twenty newly born infants it was shown that later flexion of the head, with elongation of the neck and particularly partial flexion with torsion of the neck, prevented any injection reaching the muscle. The injection material was arrested at the anterior border of the muscle, the lumen of the artery being obliterated at that point. Volcker believes that the hematomas reported were probably postobstructive edema. Anomalies in the position and size of the arteries may explain the cause of some cases of congenital torticollis. The pathologic study made of excised portions of contracted muscles has shown the waxy degeneration of Zenker, which has been described as a "sclerotic interstitial myositis culminating in a more or less hardening of the muscles, with a subsequent shortening."

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* From the Orthopedic Clinic of the Boston Children's Hospital.

[1] Luning and Schulthess: Ztschr. f. orthop. Chir., 1891, i, Part. 1.

[2] Haüsinger: Joachimsal's Handbuch, p. 432.

Etiology.—The etiology of acquired torticollis is varied, but is usually obtainable. It is secondary to some injury or disease of the structures of the neck. The simple form due to mechanical reasons, as scar contraction and trauma, is not uncommon. This form may almost be called chronic; and in this group there is a type of case which is apparently more common than is supposed. By this is meant that chronic form of torticollis due to a traumatism of the head or neck, which may be called "unilateral displacement of one of the cervical vertebrae." In the group of cases analyzed three were found which are believed to be of this type. Cases of distortion due to cellulitis of cervical glands, are, as a rule, transitory and not difficult to diagnose or treat with satisfactory result. This may be said of the distortion following tonsillitis, pharyngitis, measles, toothache, earache, etc. It is believed by some that this painful type of torticollis is due to an irritation of the peripheral nerve which results in active contraction of the neighboring muscles, but this belief has not been universally accepted, as it lacks pathologic confirmation. The irregular types of torticollis due to paralysis, ocular or physical defects, as well as spasmodic torticollis, have not been considered in this analysis, as they were not observed in any of the cases studied. The theories advanced as to the causation of congenital torticollis are still only theories. The most acceptable will be mentioned.

Stromeyer[5] believes that congenital torticollis is usually due to the rupture of the sternocleidomastoid muscle and to a subsequent myositis about the hematoma, which may involve and ultimately destroy a large part of the substance of the muscle, replacing it with fibrous tissue which, as it contracts, causes the deformity. Stromeyer's views have not been accepted by those who have studied operative material from cases of torticollis. His views do not explain the presence of torticollis in extra-uterine pregnancy, as described by Joachimstal[6] and Volcker,[3] and in those cases studied immediately after birth in which the characteristic structural changes have been seen. It is also obvious that time is required for the development of such changes in the muscle and structures of the neck, as has been observed in cases of torticollis, to believe that the condition is other than that dating from intra-uterine life. The history of swelling of the sternomastoid muscle is obtained no more often than it is not obtained.

Of forty cases reported by Maass,[7] twenty-three gave a history of pelvic presentation. In the series studied, 7 per cent. of the congenital cases analyzed gave a history of instrumental delivery. Tumor of the sternomastoid muscle does not necessarily mean a torticollis. Whitman[8] reported seven cases in which there was a swelling of the sternomastoid muscle and no torticollis subsequently developed. Keetley[9] was able to find only eleven cases of torticollis developing from thirty cases of hematoma of the sternomastoid muscle. I was able to find a history of tumor in five cases of proved acquired torticollis, and in ten cases of congenital tumor of the sternomastoid muscle in which there was a congenital torticollis. It may be seen that this theory advanced by Stromeyer is improbable for the following reasons: 1. Rupture of muscle in other parts of the body is never followed by myositis and contracture. 2. It has been demonstrated by Heller[10] that it is impossible to cause myositis and contracture in animals unless infected by actual pyogenic organisms. 3. Most of the cases seen after birth present no evidence of hematoma or injury. 4. Cases of hematoma of the sternomastoid muscle are, as a rule, not followed by torticollis.

The theory held by some writers that congenital torticollis is caused by a constrained or fixed position in the uterus for a longer or shorter time before birth, needs only be mentioned.

The mechanical theory of intra-uterine malposition, fixations of the head and neck by amniotic adhesions and the effect of obliquity of the fetal head, fails to explain why a special lesion of the sternomastoid muscle is present and why the neighboring parts are not involved as well. The simple traumatic theory does not satisfactorily explain those cases of extra-uterine pregnancies in which torticollis has been demonstrated. It would seem likely that injury to the sternomastoid during birth is more apt to take place if there has been an intra-uterine shortening of the muscle. Mikulicz[11] explains the injury which happens

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3. Volcker: Bruns' Beitr., 1903, xxxiii.
4. *Nové-Josserand and Vianny, Charles: Rev. d'orthop., Sept. 1, 1906,*
5. Stromeyer, L.: Beitr. z. Operativen Orthopädie, 1833, p. 128.
6. *Joachimstal: Wien. med. Wchnschr., 1902.*
7. Maass: Ztschr. f. orthop. Chir., 1903, p. 416.
8. Whitman, Royal: Orthopedic Surgery, Ed. 2.
9. Keetley: Orthopedic Surgery, *p. 200.*
10. Heller, M.: Experimenteller Beitrag zur Aetiologie des Angeborenen muskulären Schiefhalses, Ztschr. f. Chir., xlix, 204.
11. Mikulicz: Centralbl. f. Chir., 1895.

to the sternomastoid muscle as being caused by compression of the umbilical cord, inducing forced respiratory movements while the fetal head is still engaged in the maternal passages. The sternomastoid muscle, being one of the muscles of forced inspiration, is contracted, so that tension on the neck while the muscle is rigid will be more likely to rupture it than when it is relaxed. The exponents of the simple traumatic theory with a subsequent microbic infection failed to have their theory substantiated by pathologic findings.

From the knowledge obtained from pathologic studies, it seems that the theory based on an ischemia of the sternomastoid muscle offers the most satisfactory explanation of the cause of congenital torticollis. This theory had its greatest exponent in Volcker.[3]

Frequency.—The frequency of torticollis may be judged from the following figures. Royal Whitman[8] states that in twenty-seven years of hospital records there were only 507 cases of torticollis as compared with 5,000 cases of club foot. Of 2,324 patients at the Evelina Hospital for Children, torticollis was found 9 times. The records of the Children's Hospital, Boston, for three years show 2,825 cases treated in the orthopedic outpatient department. Of these 44 were torticollis. These figures are misleading, as cases of deformity came to the children's clinic, so the percentage is high. Whitman reports 87 cases as being congenital out of his 507 cases. Of the 87 cases, 46 were females. The left side was affected in 28 out of the 87 cases. Of the 507 cases, 246 were females and 198 were males. Two hundred and thirty-six were on the left side. In 7 cases out of 55, there was a history of injury; in 48 no history was made of injury. In the 7 cases already referred to there was a history of injury accompanied by hematoma. Kempf[12] reported 37 cases of torticollis, with 24 in girls and 13 in boys. In this analysis it so happened that 50 per cent. were acquired torticollis and 50 per cent. congenital. Agnew believes that the sexes are equally affected. Dievenbach found 5 left torticollis out of 37 cases. V. Aberle discovered 111 cases of torticollis out of a clinic of 18,000 cases in Vienna. Hoffa reported that torticollis occurred in 49 per cent. of his cases, while Schantz found it in 9 per cent. of his cases. In the 111 cases reported by V. Aberle, 67 were right and 44 left. In the 100 cases analyzed by me, 51 were in boys and 49 in girls. Torticollis occurred on the right side 55 times, and on the left 45 times. Among the boys the right side was more common, occurring 35 times in comparison with 16 times on the left, while the left side seemed the more favorite situation with the girls, torticollis occurring on the left side 29 times as opposed to 20 times on the right.

Congenital torticollis may be seen at birth or may not be observed until the expiration of a few months of life. Some writers believe that it may be hereditary and that it frequently coexists with other malformations, such as club-foot and congenital subluxation of the hip, which deformities are considered to-day as possibly resulting from intra-uterine compression or from some initial malformation of the germ. It is also maintained by some that torticollis of the congenital type is closely related to difficult delivery arising from pelvic presentations, impactions of the head and fetal malposition. It has been found in this analysis that a history of delivery by forceps is often forthcoming, but by no means universal. This review of a hundred cases showed but one parent suffering from torticollis and failed to find torticollis coexisting with other malformations except in one case of cervical rib and two cases of supposed spinal defect. The history of labor in these cases was also interesting. Twenty per cent. of the congenital torticollis cases were of normal delivery, and only 14 per cent. gave a history of difficult instrumental delivery.

Diagnosis.—The diagnosis of congenital torticollis depends on a careful analysis of the history obtained and the elimination of all acquired types. It is remarkable how long a deformity may exist before being discovered by parents. In this analysis the average duration of the deformity before discovery, except when discovered in the first weeks of life, was twenty months, while two cases had gone four years without discovery. Both acute and congenital torticollis may be easily confounded with Pott's disease. Acute distortion with an affection of sudden onset, not preceded by stiffness or pain, such as characterizes tuberculous disease, with the head tilted toward the contracting muscle, is the type of case which is easily mistaken for Pott's disease. In this series there were two cases in which caries was suspected for a time. These cases were of acute and sudden onset, but not preceded by stiffness or pain. The head in each case was tilted toward the contracting muscle, while the chin rotated in the opposite direction. There was spasm and contracture, and tension on the affected muscle was very painful, but, if this tension was removed, the motion of the head was free. In Pott's disease, the spasm is always general and motions of the head are limited in all directions. In four of the cases analyzed a rachitic deformity simulated torticollis of the congenital type. In two of these cases a true congenital torticollis coexisted. Acquired torticollis is usually, in the early stages, at least, accompanied by localized pain and sensitiveness with an actual contraction of the affected muscle. The symptoms may soon disappear, leaving only the deformity. Congenital torticollis may not attract attention until the child supports the head or walks. It is difficult then to separate the acquired from the congenital form. In infancy the deformity may be marked with facial asymmetry and even by distortion of the skull. If the asymmetry is present at birth it increases with growth, and even in the acquired form it soon appears if the torticollis is not promptly corrected. In well-marked cases of long standing, whether of congenital or acquired origin, the face on the affected side is shorter and flatter and the skull shows signs of atrophy and deformity. Secondary distortion appears, round shoulders, scoliosis, bowing of the clavicles and lateral displacement of the head.

Treatment.—The treatment of congenital torticollis may be divided into manipulation, the use of mechanical appliances, and operation. Manipulation is successful in infants when there is very little deformity, the corrected position being maintained by means of some form of support. The mechanical treatment of torticollis, according to most writers, should be simple enough to permit removal of the appliance for daily manipulations. The operative methods should all embody the principles of complete severance of all tendons and fascial bands which prevent the correction of the deformity. The methods used are subcutaneous tenotomy or subcutaneous section of the sternomastoid muscle, which have no advantages commensurate with their increased danger. Lorenz[13] advised myorrhexis and forced manipulation with rotation in all directions to overcome any shortening of fascia or muscles beside the sternomastoid. Joachimstal[6] found it difficult and Reimer reported a death in a patient 16 years old. Brackett[14] reported collapse in a case during overcorrection. Open operation on the muscle is the rational method. The three sites of operative interference are, first, just below the muscle's insertion into the mastoid process; second, at its origin, just above the sternum and clavicle; third, in the middle portion of the muscle. The point of attack at the mastoid process is easily discovered, and owing to the facility with which the soft parts may be stripped back from the apex of the mastoid process, there is no danger of wounding the internal jugular vein or the nerve and the tendinous part of the muscle is left intact. The operation is easily performed and the resulting scar is left in the line of the hair, which is of great cosmetic value. The operation on the middle of the muscle presents many dangers. This portion of the muscle is thick and important vessels are in immediate contact with its under surface. The operation is difficult and the resulting scar is visible and may be unsightly. The operation which severs the sternal and clavicular portion of the muscle is the most popular in this country. Hoffa and Nové-Josserand[4] speak well of the partial resection of the muscle. Wullstein has partially resected the affected muscle and plicated or reefed the opposite muscle. Mikulicz[11] has nothing but good results to report from the total extirpation of the sternomastoid muscle.

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[12] Kempf: Deutsch. Ztschr. f. Chir., June, 1904 (lxxiii).

The routine of the Children's Hospital has been the one followed in the large majority of the cases analyzed below. Three of the cases have had the mastoid incision, the rest have had the sternoclavicular incision, some parallel to the clavicle, some at right angles and a few by an oblique incision. The routine followed has been as follows:

Under ether the child is placed dorsally recumbent on the operating table, with the head twisted and the shoulder elevated so as to bring the offending muscle sharply into relief. The form of incision having been decided on and used, the dissection is carried down to the muscle at its tendinous portion, and all obstructing tissues are excised. The wound is closed in layers as tightly as possible, the skin approximation being as nearly perfect as can be. A collodion dressing is then applied over the skin wound, and the head held in an overcorrected position, while a plaster helmet is applied, which firmly holds this position. This helmet is then worn for two months, after which time the child wears a steel support, with a chin piece which maintains an overcorrected position of the head in its relation to the past deformity. The steel apparatus is worn for a year, being removed for purposes of massage and exercise.

Some writers insist on the daily removal of apparatus, for active and passive movements, beginning fourteen days after the operation. This has not been found necessary at the Children's Hospital to obtain good results. The use of Michel's clips in order to obtain the closest approximation of the skin, is strongly recommended, as is the oblique incision, which is better than the horizontal or vertical one, decreasing the danger of keloid degeneration of the scar. The after treatment of these cases varies with the different operators, but all agree that it is essential to success to maintain overcorrection for a certain length of time, and that some method preventing the offending muscle from shortening is necessary for from six months to a year. The results, as the tables show, are uniformly good, and those failures that must be reported were due either to the incompleteness of the operation or insufficient treatment after operation. After reviewing these cases, certain questions naturally present themselves.

Does torticollis occur in children who have less resistance to disease than other children? A comparison of the congenital with the acquired torticollis cases is interesting. If the greater average age, and therefore, longer exposure to disease, in the acquired type is borne in mind it will be seen that there is no unusual susceptibility in either group. The occurrence and frequency of disease in this list is only the normal frequency during the ages of childhood. The affections about the neck which would be expected are more frequently found in the acquired type than in the congenital type of torticollis.

Among the cases analyzed I found the complaints enumerated in Tables 1 and 2 had existed before the entrance of the patients to the hospital.

TABLE 1.—CONDITIONS EXISTING BEFORE ADMISSION

Disease	Acquired	Congenital
Ear trouble	7	1
Pertussis	28	13
Measles	33	25
Croup	1	1
Pneumonia	5	5
Rickets	3	1
Chickenpox	14	7
Scarlet fever	6	3
Diphtheria	5	3
Typhoid	1	1
Meningitis	1	0
Mumps	5	1
Malaria	1	1
Nervous	3	0
Rheumatic fever	3	1
Cervical rib	0	1
Tonsillitis	8	3
Adenoid hypertrophy	6	0
Bronchitis	1	1
Syphilis	0	1

TABLE 2.—AFFECTIONS ABOUT THE NECK

Disease	Acquired	Congenital
Ear trouble	7	1
Mumps	5	1
Diphtheria	5	3
Tonsillitis	8	3
Adenoids	6	0

In view of the reports wherein difficult labor has been attributed as the cause of torticollis, it is interesting to review the figures obtained (Table 3).

TABLE 3.—TORTICOLLIS ATTRIBUTED TO DIFFICULT LABOR

Status	Acquired	Congenital
Normal delivery	6	21
Not obtainable	12	12
Breech presentation	3	0
Transverse presentation	1	1
Foot presentation	1	0
Shoulder presentation	1	0
Instrumental delivery	12	16

The history of difficult labor with the danger of injury was found eighteen times in the acquired type of torticollis and seventeen times in the congenital, not obtained or normal in eighteen cases of the acquired type and thirty-three cases of the congenital.

In those cases in which the maternal observation may be taken seriously it is interesting to note the first symptom observed (Table 4).

TABLE 4.—FIRST SYMPTOM OBSERVED BY MOTHER

Symptom	Acquired	Congenital
General pain in neck	3	0
Torsion of neck	33	16
Stiffness of neck	15	1
Pain behind ear	5	0
Scoliosis	1	11
Tonsillitis	1	0
Tumor of the sternocleidomastoid.	0	19

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[13] Lorenz: Wien. med. Presse, February, 1893.

[14] Brackett: Trans. Am. Orthop. Assn., 1897.

The absence of pain, as reported in the congenital type, is probably due to the inability of the parents to differentiate infantile pain of one cause from another, and is not of great comparative value. The presence of pain in the acquired type is not so prevalent as one would expect from published literature. The presence of tumor in the region of the sternocleidomastoid muscle was observed in ten cases of the congenital type. Torsion is by far the commonest symptom.

In view of the above figures it is of interest from a non-medical point of view to note what the parents believed to be the causation of the deformity (Table 5).

TABLE 5.—CAUSE OF DEFORMITY ACCORDING TO PARENTS' VIEW

Cause	Acquired	Congenital
Ear trouble	6	2
Rickets	0	1
Spinal meningitis	1	0
Birth injury	1	5
Rheumatism	1	0
Adenoids	1	0
Fall	1	0
Tonsillitis	3	8

Secondary deformity was found in many cases both of the congenital and acquired types (Table 6).

TABLE 6.—SECONDARY DEFORMITY*

	Acquired	Congenital
Facial asymmetry	6	15
Atrophy	4	10
Strabismus	1	0

* Scoliosis was present. In most cases the figures are very misleading, so are not given.

The atrophy, facial asymmetry and compensatory scoliosis seem to depend on the duration of the torticollis.

The last question to answer is always, What are the results?

Most writers report uniformly good results from their respective methods of procedure. A review of the literature confirms their claims. In all the cases analyzed, positively cured cases were 64 per cent.; 14 per cent. of the cases were lost from the clinic; in 16 per cent. of the cases not lost it was impossible to get data late enough to classify the result. One case was a failure after the first operation, but was cured by a subsequent operation. Of forty-five patients operated on and examined long enough after the operation definitely to classify them as successes or failures, thirty-nine patients were cured. The reasons for the four failures were of two sorts—either incomplete excision of the obstructing tissues, or insufficient after-treatment. Two cases were not true contractures of the muscle structure, but bony injury—unilateral displacement of the cervical vertebrae, which was not recognized before operation.

Operation definitely offers a cure for the deformity of congenital torticollis and the results are uniformly satisfactory.

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The Insane in Switzerland and Spain.—The official figures for 1910 published by Koller for the four leading cantons of Switzerland show insane and feeble-minded to a total of 6 to 9.7 per thousand inhabitants. Koller accepts this as evidence that at least one in every one hundred persons there is mentally deficient or insane. The *Revista Clinica de Madrid* compares these with statistics in Spain, which show 1,000 insane in the asylums of the Madrid province, to a population of 900,000, that is, one in every 900 persons in the province is an inmate of an asylum.

THE CELLULAR FACTOR IN INFECTIOUS DISEASES *

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The prevailing conception of an infectious disease is that it is due to the poison of a parasitic micro-organism. This conception seems to me inadequate, for it leaves out of account another and to my mind very important source of toxemia, at least in some of the infections, namely, the proliferation and disintegration of myriads of new cells.

Practically all writers have hitherto attributed the constitutional symptoms of infectious diseases to bacterial poisons, either exotoxins, i. e., secretory products, as in diphtheria and tetanus, or endotoxins—poisons inherent in the bacterial bodies, as in typhoid fever and tuberculosis. And many of the local changes likewise, such as the degeneration of parenchymatous organs, are ascribed to the same cause. Take diphtheria, for example: the general symptoms—fever, prostration, albuminuria, delirium, anemia—are supposed effects of the toxins; so are the circulatory changes, the cardiovascular weakness. The swollen glands and the false membrane formation are attributed to the local action of the toxin.

With regard to typhoid fever, the views are very much the same. The so-called constitutional symptoms of the disease—fever, headache, prostration, delirium, carphologia, intestinal tympany, and albuminuria—are attributed to the presence in the blood of the endotoxins of the typhoid bacillus. These same poisons are held responsible for the intestinal lesions, the changes in the lymph glands, the bone marrow and spleen, and the parenchymatous degeneration of the heart, liver, kidney and voluntary muscles.

In tuberculosis the symptoms are ascribed either to the tubercle bacillus, that is, to its poison, or to a mixed infection of this micro-organism with pyogenic bacteria. In other words, our present conception of the infectious diseases emphasizes solely the toxemia produced by the causative parasite. Is that view adequate? Is it correct? Before answering these questions, permit me to go back a little in time. A decade and a half ago while actively engaged in pathologic work, I chanced to make an autopsy at the University Hospital in a case of general carcinomatosis, the symptoms of which had closely resembled an acute infectious disease, the last phase being a comatose state. At the autopsy the peritoneum was found everywhere dotted with small whitish nodules, indistinguishable on naked eye examination from miliary tubercles. The discovery, however, of a primary cancer in the rectum and the characteristic histology established the carcinomatous nature of the lesions.

About the same period I had under treatment a man with miliary tuberculosis in whom the disease was with difficulty distinguished from typhoid fever. He died at the end of an acute illness of three weeks' duration, the autopsy revealing everything densely peppered with equal-sized, firm, gray tubercles.

These two cases made a profound impression on me—clinically so similar, etiologically so different, and the second so much like typhoid fever. I concluded that the three diseases must have something in common. The slightest acquaintance with pathology shows that the most striking thing they have in common is a tremendous cell proliferation. In a paper written at the time (in 1899) I made these cases the basis of a hypothesis which in its essential features is the same as that I wish to present here. Permit me to quote a few lines from this juvenile essay.[1]

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* Read before the College of Physicians of Philadelphia, with lantern demonstration, Dec. 2, 1914.

> The death in miliary tuberculosis could not be explained by the destruction of tissue or even by the invasion of a vital part by the tuberculous process. The reason always given is that it is due to toxemia, through poisoning with the products of the tubercle bacillus. I would not deny that the bacillary poisons play an important rôle, but attention, so far as I know, has not been called to the part taken by the myriads of new cells that are added to the body in the course of two or three weeks. When we reflect that every living cell forms metabolic products, that cell multiplication is probably always accompanied by the excretion of certain materials, we must conclude that during the formation of the countless host of tubercles, with their infinite number of cells, a large quantum of metabolic substances is thrown into the circulation for the system to deal with as best it can; and when, under the influence of the bacillus, some of the cells break down, more soluble matters are washed into the blood. It seems but reasonable to conclude that the body cannot rid itself of that enormous quantity of metabolic products, even if this material were normal in character, and if it is, as we may justly assume, not normal, then the result can only be a profound intoxication. Add to this "metabolic toxemia," as I would call it, the bacterial toxemia produced by the bacillus, and the cause of death becomes clear.

For the moment I will leave out of consideration the carcinoma case and will confine myself to a discussion of miliary tuberculosis and of typhoid fever.

A miliary tubercle consists of a vast aggregation of epithelioid cells, together with some giant cells and many lymphocytes—cells for the greater part if not gether newly formed in response to the stimulus he tuberculous poison. The number of cells in a d sized tubercle is theoretically not beyond computation, but I know of no reliable estimate and for practical purposes the number is infinite. With regard to the tubercle bacilli, their number in a tubercle probably varies, but to all intents and purposes is also uncountable. When we consider the larger tuberculous areas, as in caseous pneumonia, both the cellular and the bacterial quantities must be expressed by the sign for infinity. I do not know how long it takes a tubercle to form, but it would seem that the cells multiply nearly as fast as the bacteria. In the course of two or three weeks there are thus added to the body in a case of miliary tuberculosis a quantity of new cells wholly beyond the power of the mind to conceive. These cells grow by utilizing the elements of the blood, chiefly the big protein molecule. In their period of active multiplication they take from the blood-stream what they need and cast back into it the unused remains. If the new cells are native to the place where they are formed then the cast-off products of their activity may be normal, though it is possible that they are formed in such quantity in a short time that the power of the system to deal with them is overtaxed. If we assume that since the cells are formed under pathologic conditions, they are not exactly like the old cells of their locality, then the possible harm done in their growth by abstraction and addition is even more readily conceived.

There is, however, another and probably more important factor to be taken into account in determining the fundamental causes of the symptoms of miliary tuberculosis. The newly formed cells soon die, by undergoing a peculiar change known as caseous degeneration. It is interesting to know how this is brought about. Some have ascribed it to the poison of the tubercle bacillus, others to starvation through inadequate circulation, and still others have held that the cells might be *ab initio* poorly endowed. The real explanation for the death of the cells is probably to be found in the newer theories of ferment action, especially in the theory of parenteral digestion advanced by Abderhalden. Abderhalden, as is well known, finds that if a foreign substance, let us say a foreign protein, which, were it introduced through the alimentary canal, would be digested there, is introduced under the skin or into the blood or anywhere except into the digestive tract, it excites at once the formation of ferments that break up the foreign protein into its so-called "building-stones." This dissolution of the protein by the appropriate ferments is a true digestion and since it occurs outside of the alimentary canal is called *parenteral digestion.* It is possible by physicochemical methods and by certain optical tests to demonstrate the presence of these proteoclastic ferments through their resultant products in the blood. The recent reports by Drs. Sailer, Schnabel and Williams have brought out the main points of the Abderhalden theory.

I have looked in vain in the English literature for a satisfactory rendition of the important terms created by Abderhalden to elucidate his theory, and have therefore endeavored to meet this lack by a series of new terms as shown in the following tabulation:

Abderhalden Term	Proposed Term
Körpereigen[2]	Idiosomatic
Körperfremd	Allosomatic
Bluteigen	Idiohematic
Blutfremd	Allohematic
Zelleigen	Idiocellular
Zellfremd	Allocellular
Arteigen	Idiogeneric
Artfremd	Allogeneric

A word about the derivation of these terms, in particular the prefixes, may not be amiss. "Idio" is derived from ἴδιος, own, proper, peculiar (οἱ ἴδιοι, friends). "Allo" comes from ἄλλος, other, foreign. Idiocellular and allocellular are, I confess, hybrids, but they are more euphonious, I think, than idiocytic and allocytic.

To return to the tubercle: As stated, the cells of the tubercle undergo a sort of digestion which in the ordinary case does not go on to complete solution of the tubercle. The failure of digestion to be complete, Jobling and Petersen[3] attribute to the presence of soaps which act as ferment-inhibiting substances. Under certain conditions not clearly understood — Jobling and Petersen believe that mixed infection is necessary—complete solution occurs with the disappearance of the tubercle. This is proved clinically by indubitable cases of cured miliary tuberculosis of the meninges and by the proved disappearance of even large tuberculous foci and masses in the lungs and peritoneum. In the removal of some of the products, phagocytes may be active; but the digestion itself is a chemical process.

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[1] Riesman, D.: Philadelphia Med. Jour., Feb. 4, 1899.

[2] Gavronsky and Lanchester (Defensive Ferments of the Animal Organism, New York, 1914) in their otherwise very satisfactory translation of Abderhalden's book, use the rather cumbersome terms "in harmony with the body" and "out of harmony with the body" for the words Körpereigen and Körperfremd.

[3] Jobling and Petersen: Jour. Exper. Med., 1914, xix, No. 4.

We have then in tuberculosis myriads of cells undergoing parenteral digestion and in consequence throwing into the blood products that if not qualitatively are at least quantitatively abnormal. It is my belief, therefore, that in acute miliary tuberculosis and indeed in all other forms of tuberculosis, a large share, not yet measurable, in the production of the symptoms must be given to the substances liberated by the living and dying pathologic cells.

I will now pass on to typhoid fever. I may say at once that, in general, what I have said of tuberculosis holds true of this disease. The typhoid bacillus enters the body through the intestinal canal, gets into the intestinal lymphoid tissue, into the lymph glands, the bone marrow and the spleen and provokes in all of these places, in an exceedingly short space of time, a truly collossal proliferation of cells. I exhibit here several specimens of intestines in which Peyer's patches reveal themselves as large fleshy masses. The normal spleen weighs about 200 grams, the typhoid spleen probably five or six times as much. Even if some of this additional weight is blood, because of active congestion, the greater part is constituted by new cells developed in the course of a week or ten days.

The lymph glands of the mesentery are normally scarcely appreciable to sight. In typhoid fever they may be as big as walnuts. When we contemplate it, is not this increase in cells staggering to the mind —an increase quite on a par with the stupendous multiplication of the bacteria. This extraordinary cell proliferation is achieved by complicated processes in which, as Reichert[4] has just shown, the cells convert the stereo-isomers of the blood into their own specific proteins. The conversion involves such tremendous cleavages and reconstructions that as mere manifestations of dynamic energy they may be compared to the manifestations of radio-activity.

Adapting a further thought from Reichert, I might say that the typhoid bacillus, after entering the body, disturbs the physicochemical equilibrium and initiates a series of reactions that go on from step to step until the end of the process, a physiochemical equilibrium which is either recovery or death, is reached. The beginning of the process—the first step—absolutely and inevitably determines the end, a sort of predestination not dreamt of in John Calvin's philosophy. All the changes from the liberation of the typhoid poison to complete autolysis of the newly formed cells are produced by the action of appropriately geared ferments. These changes are all connected and in their totality they constitute the disease typhoid fever. Viewed from this aspect, the symptoms of typhoid fever are a composite of the bacterial and the cellular toxemias and are not the result of the typhoid toxemia alone.

Naturally it is difficult at this time to say what part of the symptomatology of typhoid fever is bacteriotoxic and what part is cellulotoxic, nor have I any clear idea how the problem is to be solved. Perhaps the Abderhalden test, employing spleen, bone marrow and lymphoid tissue as substrate, may show corresponding ferments in the blood. While that demonstration would not *ipso facto* be proof of toxic action, it would open the way to further research.

Pneumonia is another disease in which the bacterial toxemia has been overemphasized to the exclusion of everything else. It seems to me not at all improbable that some of the general symptoms are due to the exudate, independently of the bacteria.

Friedrich Müller and later Flexner[5] showed that the resolution of the exudate—the autolysis—is a fermentative process. Why may not active substances be liberated in this process, inasmuch as autolysis is an ideal example of parenteral digestion? It seems to me quite probable that the crisis is due to this factor rather than to bacterial antibodies. A study of the amino-acids in the blood, and animal experimentation with extracts of pneumonic lung, may help to solve the problem.

If anyone sufficiently interested will think over the remaining bacterial diseases, other examples of cellular toxemia will suggest themselves. There are, for instance, the ordinary pyogenic infections in which leukocytic infiltrations occur outside of the blood vessels. These infiltrations undergo digestive autolysis, whereby active substances may be turned into the circulation. The so-called Fochier's abscess (*abscès de fixation*) illustrates this possibility in an empiric way. That leukocytes may be active in the body for which they are *körpereigen*—idiosomatic—is shown by the recent observations of Moreschi[6] and of Rotky.[7] Both found that the leukocytes in leukemia destroy the power of agglutinin formation in typhoid fever and other infections. The effect of the Roentgen ray on the spleen in leukemia and other diseases, an effect manifesting itself by fever, prostration and metabolic changes, is another evidence of the possibility of cells from the individual's own body, in other words, idiosomatic cells, developing toxic power. It may also not be irrelevant to mention that Krehl[8] attributes the fever frequently noticed in pernicious anemia to elements derived from the disintegrating red blood corpuscles.

The interesting observations of Flury[9] are also in line with my hypothesis. Flury believes that the symptoms of trichinosis are in part due to the trichinae acting mechanically and to a poisonous substance which they contain; in part, however, to the chemical products that arise from the degradation of the invaded and damaged muscle tissue of the host.

With regard to malignant disease, the case I mentioned earlier in my essay finds a fairly satisfactory explanation if we assume that the theory or hypothesis of "cellular toxemia" is correct and of general application.

I have no doubt that the thoughts here expressed have in some form occurred to other men; yet I have looked in vain in medical literature for any allusion to the cellular factor in disease, apart of course from any local effects. The splendid Traité de Pathologie by Bouchard and Roger is, as far as I have been able to determine, entirely silent on the subject. It is true reference is made to the action of the lymphatic glands in infectious diseases, but chiefly in their mechanical relations as filters, or as I would call them, barrier-forts, as distributors of infection and as sources of phagocytes, not at all to the possibility that the products of the lymphoid cells, living or dead, may contribute an active "something" to the circulation.

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[4] Reichert: Science, Nov. 6, 1914.

[5] Flexner: University of Penn. Med. Bull., July-August, 1903.

[6] Moreschi: Ztschr. f. Immunitätsf. u. exper. Therap., 1914, xxi, 410.

[7] Rotky: Zentralbl. f. inn. Med., Oct., 24, 1914, No. 43.

[8] Krehl: Pathologische Physiologie, Ed. 8, Leipzig, 1914, p. 145.

[9] Flury: Arch. f. exper. Path. u. Pharm., 1913, lxiii, 164.

On the basis of the theory or hypothesis here advanced a new classification of bacterial infections suggests itself. We may make two great classes:

A. The productive infectious diseases, characterized by cellular proliferation.

B. The non-productive infectious diseases, not so characterized.

To the first class belong tuberculosis, typhoid fever, and pneumonia.

In pneumonia the cells of the exudate may not be all newly formed. They may have been called forth from the cell depots in the blood and elsewhere. They are, however, new in their pulmonary site and in the Abderhalden sense are out of place.

To the non-productive bacterial diseases belong diphtheria and tetanus.

A closer study of this classification reveals an extremely interesting point, namely, that the infections classed under A, that is, the productive infectious diseases, are all due to bacterial endotoxins, or, in the sense of Vaughan, to split proteins, while those in Class B, the non-productive infectious diseases, are due to the soluble toxins and not to poisons contained in the bacterial bodies. Whether this is a general biologic law, I do not know.

In conclusion, I beg to express the hope that men devoting themselves to research, if they find anything suggestive in the hypotheses advanced, will test them by the experimental method.

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SOME OBSERVATIONS ON THE NERVOUS AND MENTAL SYMPTOMS OF HEART DISEASE

JOSEPH IRWIN FRANCE, A.M., M.D.

BALTIMORE

In all our studies of disease processes it is imperative that we remember that we are always dealing with an organism and not with a mechanism, that this organism is a morphologic and physiologic unit, and that, therefore, there can be no change of a pathologic nature in one part which does not produce deviations from the normal throughout the whole. Particularly must it be borne in mind that pathologic processes, before they are discoverable by any physical sign, may, and generally do, produce marked changes in the nervous system of the patient. It is quite probable that the first effect of a nascent disease is the production of a nervous reaction which tends to inhibit the further development of the process. *Indeed, one of the chief* functions of the nervous system must be the overcoming of pathologic tendencies here and there and the maintenance of that fundamental equilibrium which constitutes health, in the face of the mechanical, chemical and biologic agencies which are constantly tending to disturb the perfect balance of physiologic forces. While, as yet, we are not able to understand them, we are compelled to believe that there are many nervous reactions, preserved and developed by natural selection, which are set in motion by those stimuli, which tend to produce a disease process, that these nervous reactions are of a conservative nature, and that without them the organism must quickly perish. A better *knowledge of these nervous reactions will go far* toward clarifying our understanding of certain puzzling phenomena of immunity and may throw some light on the obscure problem as to how mental suggestion can influence a morbid physical condition in a favorable manner.

The classic work of Head[1] on the "Mental Changes [illegible]sceral Disease" has not, I believe, [illegible] attention on the part of general practitioners and students of medicine.

Some time since, as a result of reading Head's article, and following certain suggestions of Dr. Stewart Paton, which were most valuable, I began a study of the nervous and mental symptoms of cardiac disease, and, while this work was not carried as far as I wished, I desire to present, in a preliminary way, some of my tentative conclusions. Head found that there were *two symptoms referable to the nervous system which* occurred quite constantly in cases of disturbed or broken cardiac compensation. First, a reflected pain along the distribution of the fifth nerve, and second, a mental and emotional abnormality, aside from any worry about the disease, characterized by depression, anxiety and fear, often with a sense of impending ill, and, further, that these emotional states occurred either with or without distinct delusions and hallucinations. It was my purpose to determine, if possible, whether these nervous symptoms could be made of practical diagnostic value, and whether the development of these emotional states in cases of cardiac irregularity could be made to throw any further light on certain disputed questions in connection with our knowledge of the emotion-producing mechanism.

We know that the mental state following a perception which is to cause an emotion, is followed by marked changes in the whole circulatory system, especially in the rhythm of the heart, the heart frequently being checked in its action, or momentarily paralyzed, this being followed by a rapidity and irregularity of action of varying degrees. The Lange-James theory of emotion, which has had many opponents, holds, as stated briefly by Ribot, that, in any emotional state, there is, "first, an intellectual state, then organic and motor disturbances, and then the consciousness of these disturbances, which is the emotion," or, as James says, "The bodily changes follow directly the perception of the exciting fact and our feeling of the same changes, as they occur, is the emotion." In view of this much discussed psychologic theory, it becomes most important to determine whether cardiac motor *disturbances, caused in a purely mechanical way, as* by a leaking heart valve, may act as a stimulus from below, as a certain intellectual state may act from above in producing an emotional state, and whether this emotional state, so caused, may bring about an intellectual state to explain it. *If this is possible, then* we have a complete reversal of the emotion-producing mechanism and very strong corroborative evidence in favor of the Lange-James theory. The observations of Head, which, as far as I went, I have been able to confirm, are of great value, for the reason that they give us new evidence on this point. As briefly as possible I desire to state some of the tentative conclusions which I have drawn from a study of Head's cases, as reported, and from observations on cases of my own.

AUTHOR'S CONCLUSIONS

1. A defective heart valve, producing cardiac muscle strain and irregularity, is sufficient to create a dis-

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[1] Head: Brain, 1901, xxiv.

tinct emotional state of depression, anxiety and fear, independent, as Head says, of any worry about the disease. This emotional state, arising from a mechanical difficulty, resembles closely that arising from a psychic state, and the emotional state so caused may either remain vague and unexplained, or there may be induced delusions and hallucinations to explain it. One of my patients (Case 3) with mitral regurgitation suffered during the first stages of broken compensation from extreme depression, fear and irritability, but later became suspicious and obstinate and finally developed delusions of persecution and hallucinations. His delusions first appeared in the hypnagogic state, fading as he became fully aroused and attentive. Later, he came to hold them more tenaciously, and they finally became fixed. Further observations will prove, I believe, that persistent irregularity of the heart's action does, in almost every case, produce a mental and emotional state deviating in some important respects from the normal, which abnormality may be occasional, slight and transitory or so marked and permanent as to constitute a distinct psychosis.

2. The first mental symptoms of cardiac disease occur when the inhibitions of the higher centers are relaxing in the hypnagogic or in the sleeping state, and there is much to substantiate the old view that night terrors and nightmares are often caused by an irregularity of the heart's action. As the physical disturbance becomes more massive, either by increased intensity or chronicity, the mental abnormality is carried over into the partially or fully awakened state. One patient with aortic regurgitation and arteriosclerosis when trying to sleep would become greatly troubled with mild delusions of self-persecution and with self-accusation. This distress was frequently keen and would persist after he was fully awake. Often, to free himself from the annoying delusion, he would get up and move about, when the idea would become weaker, only to grow stronger again when he returned to bed. All heart patients should be questioned closely about their sleeping and dreaming, for it is quite possible that periods of failing compensation might be forestalled, in certain instances, if rest were instituted at the first approach of these marked nervous phenomena. There can be no doubt of the fact that any alteration of any of the normal physiologic rhythms, especially of the heart rhythm, exerts a profound influence on the mental state, especially during sleep. This being the case, it is evident that any system of psychic or dream analysis, as advocated by the Freudians, should take into consideration the condition of the circulatory apparatus and its functions.

3. There are cases of heart disorder which may long remain undiscovered by the attending physician because of his failure to properly study the nervous symptoms of his patients. Those disorders which are characterized by brief periods, occurring at long and irregular intervals, during which the normal action of the heart is more or less seriously disturbed, are very easily overlooked by the physician who places too much confidence in his stethoscope, which will reveal nothing in the interval between the attacks. A patient giving a history of occasional very distressing dreams, from which he awakes with a sense of oppression, should, if possible, be so placed as to be under observation during the night, when it may be found that the disturbed rest has been due to an attack of extreme bradycardia. I have seen one such instance, and here the occasional nocturnal attack of bradycardia was the only cardiac symptom for some time, although attacks during the day developed at a later period. Such cases show the importance of observations of the heart action during sleep, especially where there are unusual nervous phenomena. They also raise the very interesting question whether there may not be painful experiences in the somnolent state of a subjective nature induced by cardiac irregularity, caused by coronary and myocarditic changes, which for some time precede and may perhaps give warning of the symptoms of angina pectoris which are to develop later.

From what we know of the extreme sensitivity and quick response of the brain centers in the somnolent state to any alterations in the physiologic rhythms, we should expect to find such premonitory symptoms during sleep at the very beginning of the process of cardiac degeneration, and the question is worth further study.

4. The symptoms referable to the nervous system which we find in certain forms of heart disease are constant enough to be of practical value to the physician. The neuralgia of the fifth nerve and the scalp tenderness over the area of its distribution, as described by Head, is of such frequent occurrence that it is of some diagnostic and prognostic value in heart cases. In any case of heart strain, whether due to valvular lesion or prolonged functional overactivity, as in hyperthyroidism, this symptom may develop, and, in chronic valvular cases, the onset of neuralgia may precede a period of failing compensation so regularly that the patient himself learns that the pain is a signal that he must rest. It is, I believe, quite probable that a neuralgia of the fifth nerve is, far more often than has been generally supposed, a reflex visceral pain. In every case a thorough search should be made for a visceral cause, especially by a careful examination of the heart. In chronic heart cases the onset of neuralgic pains should always be considered an indication of the beginning of a period of disturbed compensation. It is possible that this pain may be the first and only symptom of seriously increasing heart strain in certain exceptional instances.

5. It is important to remember that many cases of fifth nerve neuralgia, and also many cases of neurasthenia with anxiety, fear and depression, especially in patients 40 or 50 years of age, may possibly be due to that condition of nerve strain which may be caused by a nascent cardiac disorder not sufficiently developed to be discoverable by physical signs. The long known favorable results of physical rest in many of such cases of functional nervous disorders might thus be explained if the theory is a sound one. Very much has been written about the far-reaching effect of ciliary muscle strain, and the profound influence of all forms of ocular trouble on the nervous system, and now we are just beginning to realize how necessary is the study of the influence of cardiac center, nerve and muscle strain, and compensation, perfect and imperfect, in the production of nervous symptoms.

Patrick[2] agrees with Dana,[3] that trifacial neuralgia is most apt to occur between the ages of 40 and 60, or in the "degenerative period of life," observations which are of great importance in this connection.

It is worth while to consider whether it is possible that the nervous and psychic symptoms described by

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[2] Patrick, H. T.: The Symptomatology of Trifacial Neuralgia, The Journal A. M. A., May 16, 1914, p. 1519.

[3] Dana, C. L.: Natural History of Tic Douloureux, with Remarks on Treatment, The Journal A. M. A., May 5, 1900, p. 1100.

Head, constitute a complex conservative nervous reaction, preserved by natural selection for the protection of the organism, since pain and depression, by tending to limit activity, would in these cases exert a restorative influence. It may be that further careful study of the nervous symptoms of diseased states will furnish other examples of now unknown nerve reflexes which have for their purpose that same limitation of motor activity which is so often of such great therapeutic value.

Every individual is a network of more or less differentiated but intimately associated functions, and a disorder in any part or function, in its incipiency, and in its later irradiations, constitutes a natural experiment by which we can increase our knowledge of every part and function. What has already been learned by many able investigators of the interrelation of physical and mental states, has made possible modern psychology and psychiatry, but much more must be accomplished. Every physician should carefully investigate, as far as possible, the nervous and mental symptoms of his patients and make reports on interesting cases, and every general hospital should have a psychologic laboratory for the investigation of suitable cases. This preliminary and, perhaps, premature paper is offered in the hope of securing the interest and cooperation of others in this important line of work.

The following cases illustrate some of the above points:

ILLUSTRATIVE CASES

Case 1.—H., woman aged 52, married. Mitral regurgitation. March, 1904.

Twenty years before the patient had a severe attack of rheumatic fever, lasting all of one winter. Later, she had two attacks of pneumonia. Ten years ago she had a severe illness marked by fainting spells and dyspnea. In the winter of 1903-04 she went to a sanatorium with her husband, who was an invalid. She complained to the physician in charge that she suffered with severe facial neuralgia, but was told that it was only imaginary, and was advised to take plenty of exercise out of doors. She began walking several miles each day. The neuralgia became very severe after she began her regular walks in December. Early in March compensation was completely broken. Extreme dyspnea, bloody expectoration, edema of feet, soft blowing systolic murmur, with pulse 120, and, at times, very weak. All winter the neuralgia had been severe, worse at times, and when she was walking out of doors. The pain was over left face and forehead, over the back of the head, on the same side, especially behind the ear. It was very severe when treatment began in March. She was put to bed, given digitalis and purged and the neuralgia and heart action improved rapidly until the end of the third week, when the neuralgia disappeared.

I had this patient more or less under my observation for ten years after this attack, and while an invalid, with increasing disability, frequent periods of rest and extreme care prolonged her life. During this period neuralgic pains occurred at intervals and were always considered indications that a long rest in bed was necessary. This patient also had hallucinations, as described by Head, when the neuralgia was at its height. A little man in dark clothes would appear at the foot of her bed and look at her. She thought he was the pain and would say "Go away."

Case 2.—City Hospital (now Mercy). H., man aged 50, engineer, widower. Aortic insufficiency. Arteriosclerosis. Feb. 14, 1905. Dilated venules on face, lips cyanotic, neck vessels pulsate, emphysema, dilated heart, sounds irregular, with diastolic murmur at the base and systolic at the apex; disseminated arteriosclerosis; extreme dyspnea and orthopnea; Corrigan pulse.

Sleeps very lightly and says he knows the hour at any time in the night. Mental state at night as follows: He finds himself very much worried and reproaches himself for some piece of work he had left undone or had not done properly years before. He has a strong impulse to go and finish the work in question. The task is always a specific one in his past life, and there is an actual but faint delusion. He says, "I say to myself, that was long ago, that work. I have nothing to do with it now, and I get myself out of it [the delusion]." At these times he is probably partially asleep but is not sure. The idea has recurred over and over again at night. He says, "It is an idea, not a dream," and he is much distressed by it. To rid himself of it he would often get up and light his pipe, but even then sometimes it would persist and get stronger when he would return to bed. Pulse is weak, intermittent and every second or third systole is incomplete and not felt in the radial artery.

Case 3.—City Hospital (now Mercy). Feb. 28, 1905.

J. G., man aged 42. Mitral regurgitation, failure of compensation, psychosis. Nine years previously the patient had rheumatism; never the same since. Alcoholic; heart dilated; irregular; systolic and presystolic murmur; edema of feet; enlarged liver, 2 inches below costal margin; ascites.

New Year's night the patient had been drinking, when he was seized with dyspnea and pain over the heart; feared death. Now is very irritable, excitable and obstinate. Disobeyed directions because he had impulse to disobey. In this state before he came in. He was in a condition of mild resistance. Contradicts statements. March 10, sat up all night. Says, "Dropsy and pain slowly come up to level of lower chest at 10 a. m. and then slowly go back." Was irritable, anxious, emotional. Three days later became very restless and reticent, refusing to talk. Five days later he became suspicious and resentful, taking a dislike to one near him. He stares about in a nervous manner. He asked if he had been home since he had been in the hospital. Thought he had been moving at home, and asked when he would be paid a certain imaginary sum of money. About ten days later the idea that he was moving his furniture the night before seemed firmly fixed, except when he was fully aroused and attentive; but it became more difficult to make him dismiss his ideas and delusions. In the night he left his own bed for another and said he did not know he was doing it. His restlessness was due to a growing state of fear and anxiety and he talked vaguely about men and wagons coming to move him away. His heart symptoms improved but slowly and about a month after admission he became very troublesome, having developed well defined delusions that men were after him to kill him. He saw four men hanging over his bed. Tried to escape by jumping out of window. Begged to be saved, and insists that the delusions are real, pointing to his eyes and ears, saying that he knows what he sees and hears. He became more troublesome and the delusions of persecution more fixed until it became necessary to move him to the annex and put him under restraint. The delusions were very strong, and he seemed to be terrified, talking very confidentially and in pantomime. He was finally removed to Bayview Asylum, where, unfortunately, I lost sight of him.

15 West Mount Vernon Place.

An Anastigmatic Spectacle Lens.—Spectacle lenses hitherto employed have had the disadvantage of blurring the image at the edge of the lens, caused by the astigmatism of oblique pencils of light. Much improvement in this respect over the old flat lenses, with an angle of distinct vision of 16 degrees, was secured in the meniscus and Toric lenses, which latter gives an angle of distinct vision up to 52 degrees. A further improvement in the angle of distinct vision up to 60 degrees is said to have been developed by von Rohr in the laboratory of Zeiss of Jena, who succeeded in correcting for all foci the astigmatism noticeable toward the margin of ordinary lenses by computing the power of each lens and its correction separately. Lenses have heretofore been made with the same base curve on one side for all focal distances, the grinding to fit any special error of refraction being done on the other side. In the improved lens both sides are ground after the computation above referred to, with a resulting angle of distinct vision practically equal to that of the normal eye without moving the head.

HAY FEVER

ITS TREATMENT BY INJECTION OF A SOLUTION OF RAGWEED POLLEN

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OMAHA

Hay fever as a clinical entity has been recognized since about the beginning of the nineteenth century. It was first regarded as a catarrh. Bostwick, one of the earliest writers on the subject, connected it with the heat and sun rays and called it summer catarrh. It was a natural transition for the disease to be later called hay fever, as it was thought, at least by lay minds, that the odor of hay caused an attack. Similarly, the appellation "rose cold" was given to that variety which seemed to follow from inhaling odor of roses. The first definite connection between the pollen of plants and hay fever was recognized by John Elliotson, in 1830.

In the United States it was early noticed that there are two distinct conditions inducing hay fever, quite similar in nature, but occurring at different times of the year—one beginning about the last week in May and lasting until the second week in July, and another commencing about the second week in August and continuing until the first week in October. The latter form, it was observed, was by far the more common in this country. The first clear description of the two disorders was given by Wyman, in 1872, who recognized the pollen of ragweed as one of the causative agents of the autumnal form. Blackley also believed that the symptoms of rose cold, the early form of the disease, were caused by the pollen of the *Graminaceae,* or grasses.

About the time of the researches of Pasteur and Koch, hay fever shared the fate of a host of other diseases, and the attempt was made to establish an infectious etiology. This obscured, somewhat, the importance of pollen as a causative factor, and it was not until 1896, when George Sticker published his classical monograph on hay fever, that the theory of pollen etiology assumed a definite, scientific character. Even Sticker, however, believed merely that the pollen carried an irritating parasite which would eventually be discovered. It remained for Dunbar definitely to convince the medical world of the specific action of the pollen.

The most recent experimental and clinical work on hay fever has been done by Karl Koessler[1] of Chicago, whom I shall extensively quote.

A definition of hay fever, in accordance with our present understanding of the condition, would be: an exudative catarrh of the conjunctival, nasal and tracheobronchial mucous membrane, produced in hypersensitive individuals by the sensitizing and anaphylatoxic action of the pollen of certain plants.

There is a certain condition, or group of symptoms, which closely resembles the true hay fever, but it is in only a slight degree related to it. I refer to the disease formerly known as hyperesthetic rhinitis. This resembles hay fever only in so far that it is a coryzalike attack induced by any form of irritation to the nasal mucous membrane. It may occur at any time of the year and does not carry with it the general constitutional depression which is so characteristic of the true hay fever.

As proofs of the etiologic relation between pollen and hay fever, or pollen disease, as it should more properly be called, the following may be offered:

First: If a few pollen grains, from one of certain members of the botanical group *Graminaceae,* such as rye, wheat, timothy, foxtail, etc., are inserted into the nostrils of a sufferer from rose cold, a typical attack of the disease is immediately produced. This may be done at any time of the year. Again, if a few grains of pollen from certain members of the botanical group *Ambrosia,* such as ragweed, golden-rod, asters, marigold, etc., are put into the nostrils of a patient subject to autumnal catarrh, an attack of the disease follows, even though the experiment be made in winter. Also, the action is specific, that is, pollen from *Graminaceae* will have no action on the autumnal catarrh man, and vice versa.

Second, and most conclusive proof:

It has been established experimentally that guinea-pigs can be readily sensitized to pollen protein by minute doses gradually increased, and, after a suitable incubation period, suffer a most severe anaphylactic shock on reinjection. Guinea-pigs were injected with serum from the blood of a patient suffering from autumnal catarrh, and later reinjected with a solution of 1 : 10,000 ragweed pollen, and a typical anaphylactic reaction resulted, thus proving that the guinea-pigs had been sensitized to pollen protein by that contained in the patient's serum. Control animals were not affected by the same dose of pollen protein.

I think we must conclude, therefore, that pollen from certain plants acts as a causative agent in at least a large majority of cases of hay fever. It has been found by experiment that of the members of the botanical group *Ambrosia* which produce this specific reaction the pollen from the ragweed is the most characteristic and representative. Consequently, ragweed is used exclusively to produce immunity reactions.

After the etiology of a disease is established, the next logical procedure should be to apply the knowledge gained, if possible, to therapeutic measures. The question at once arises, What is the pathogenesis of the condition? Accepting the fact that pollen protein is the causative factor in hay fever, what is deficient in the sensitive individual that allows the protein to act as a sensitizer? All explanations of immunologic phenomena are partially inadequate, but advance is made only by discarding parts of a given hypothesis and accepting those subject to proof. Consequently, some working hypothesis must be adopted.

The best explanation of the action of pollen in hay fever is that given by Koessler,[1] the substance of which follows: It has been known for some time that the bactericidal power of the nasal secretion is due to proteolytic enzymes. It is, of course, accepted that the pollen protein, at some season of the year, reaches the nasal mucous membrane of all persons. In most people the proteolytic enzyme present gradually splits the pollen, like any other foreign protein, into harmless products, proteoses and amino-acids. This cleavage occurs slowly, so that the poisonous group contained in every protein molecule is at any one time only in small concentration and is rendered inert, since the diffusibility is low. Thus, under normal conditions, the absorption of protein is exceedingly minute. However, there are certain conditions which interfere with the normal digestive function of the nasal mucosa, and in that case sufficient protein may be absorbed to lead to sensitization. One such condition may be a lessened nasal secretion associated with a lowered quantity of proteolytic ferment; or another may be a stenosis of the nasal canals through hypertrophied turbinates, leading to excessive accumulation of inhaled matter. It is conceivable that there may be a number of conditions which interfere with the normal nasal secretion. Whatever the cause of the disturbance of the power of the nasal secretion to break up complex protein molecules, the important fact is that, owing to this deficiency, there occurs a parenteral intake of foreign protein. This has the effect of injuring the epithelial cells of the mucosa and the endothelial cells of the capillaries in such a way that the mucosa remains permanently in a state of increased permeability for the protein; also, and most important, it brings about a new function of these cells, consisting of the production of a specific protective ferment directed against the specific pollen protein—in other words, the local tissue becomes sensitized. This, at first local, sensitization gradually reaches every tissue in the body, and all fixed tissue cells become sensitized, which is only another way of expressing the fact that all cells attempt to protect themselves by throwing off this specific proteolytic enzyme. The tissues first injured, however, retain this specific protective power to the highest degree. Thus these cells remain permanently in a state of sensitization, and when the protein again comes in contact with the sensitized area during the following season, the protein is absorbed unchanged and broken up in the body. The effects of this process depend on the degree of concentration and quantity of the poisonous fraction split off. The first symptoms are obviously local—there occur sneezing, itching and burning in the nose, eyes and throat, followed by vasodilation extending to inflammation with continued absorption. It may readily be seen how, if the process advances far enough, the bronchial mucosa may be affected, either directly or possibly through the blood, thus producing the dreaded asthma.

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[1] Koessler, Karl: In Forchheimer, Frederick: Therapeusis of Internal Diseases, D. Appleton & Co., 1914, v, 671.

Now, how shall we make practical use of Koessler's theory and of our knowledge of the characteristics of the disease? Two ways are open. One may attempt to combat the disease by adding some substance to the organism which will neutralize the poisonous fraction of the split protein molecule, this constituting passive immunization; or one may try to develop in the tissue of the individual a substance which will neutralize the poisonous fraction, thus producing active immunization.

Dunbar elected to immunize passively, and his well-known pollantin is the outcome of his efforts. He injected horses with gradually increased doses of ragweed pollen, with the expectation that a specific antibody would eventually be formed in the serum in sufficient amount for practical use. He hoped that by injecting this antiserum into a sensitized human being, he would be able to neutralize the effect of the protein poison. Thus he assumed that the pollen protein acted as a true toxin. He was rewarded with a moderate degree of success.

Active immunization in pollen disease has not been attempted until quite recently. It is true that Dunbar, in his work in passive immunization, injected solutions of ragweed pollen in some of his assistants who were sufferers from hay fever, but the strength of the solution was so great that the results were very alarming, and he rejected this line of investigation. In 1910, Noon and Freeman in England and Koessler in America, unknown to each other, made the first attempts at active immunization. The English writers worked with the rose cold variety, caused by pollen from the grasses, this being the form most common in their country. Consequently, their results are of value to us only in so far as they prove the correctness of the principle involved. In a recent article, Freeman reports eighty-four cases with a so-called complete cure in 30.5 per cent.—the disease greatly diminished with almost complete relief in 34.5 per cent., slightly diminished in 24 per cent., and no effect in 11 per cent. He concludes that active immunization with a pollen vaccine, whether judged by statistics or the experimental method, has succeeded, and that the immunity seems to last for at least one year after treatment has been discontinued.

Koessler of Chicago first began his work in active immunization in 1910. He used ragweed pollen and treated only cases of the autumnal catarrh variety. He was the first to report definite methods of preparing pollen solutions, and to him must be given the credit of placing this form of the treatment on a scientific basis. He gave injections both in a prophylactic way, before the appearance of the hay fever symptoms, and after the disease had been established. His results correspond closely with those of the English investigators. He reports 10 per cent. absolute cures, 70 per cent. markedly improved subjectively and objectively, 12 per cent. subjectively improved, and 8 per cent. not affected.

My own experience with this method of therapy began in August, 1914. I was unable to obtain any ragweed pollen until the time of the flowering of the plants. Consequently, my attempts at immunization have been confined to those patients who were already suffering from the disease. I feel certain that the desirable course is to give the injections before the symptoms appear, and thus to attempt to establish the immunity before exposure to the pollen. I found it exceedingly difficult to gather the pollen, owing to its extreme lightness. The plants were picked and placed in water over night, in a room where the air was not moving, and then with a camel's hair brush, the fine yellow pollen grains were brushed off into a dish. I obtained pollen from two varieties of ragweed, *Ambrosia artemiseaefolia*, or the common dooryard form, and *Ambrosia trifida*, or giant ragweed, which grows along marshy places.

I followed the technic of Koessler, with some slight modifications: Ten mg. of pollen from each variety is triturated with sterile silicon in an agate mortar. Twenty c.c. of a sterile salt solution ten times stronger than a physiologic is then gradually added and thoroughly shaken. The suspension is placed in the incubator for twenty-four hours and again shaken. The mixture is then centrifuged at a high rate of speed and the supernatant fluid pipetted off. This solution is a dilution of 1:1,000, and from it all others are prepared. First, it is diluted ten times with sterile distilled water to which has been added 0.25 per cent. phenol (carbolic acid). The salt solution is then a physiologic one, and is a dilution of 1:10,000. This dilution and all lower ones are unstable, and deteriorate by progressive proteolysis into a toxic product within ten days. The concentrated 1:1,000 solution is more stable and will keep, on ice, for about three weeks. It is needless to say that all manipulations must be carried on with aseptic precautions. I have made it a rule never to inject a solution until after plating on agar.

The unit of pollen toxin adopted by various workers has been of different sizes. I have adopted as a unit the amount of protein contained in 1/1,000,000 gm. pollen, or that contained in 1 c.c. of a dilution of 1 : 1,000,000.

I treated twenty-one cases; fourteen were objectively and subjectively relieved; in the other seven the treatment was incomplete for one reason or another. Two of these seven showed no reaction, either good or bad. Four more were certain that their attacks were lighter. One patient was undoubtedly made worse, a result which I think was due entirely to a mistake of judgment on my part in giving her a large dose without gradually working up to it. Three of the cases had a bad asthma complicating. Two of these were completely under control and the other was much relieved.

I feel that I lost much valuable time in the early part of the treatment in being too cautious, as I realized the possible alarming effect which might be produced by too large a dose of the vegetable poison. I believe a dose larger than seventy-five units cannot be given without producing unpleasant symptoms.

In fourteen cases in which a positive result was obtained, I observed this striking occurrence in each case: After a dose was given sufficiently large to obtain relief, the freedom from symptoms lasted only from two to five days, depending on the severity of the case. Then the symptoms returned, although they usually were not so severe. Another dose of the same size being then given, relief was again obtained. One is impressed with the fact that the immunity conferred was only of a transitory nature.

It is difficult to determine exactly what should be designated as a cure. Many years ago a great medical philosopher, who was no pessimist in regard to treatment, gave as an aphorism, "Nothing ever gets completely well." It is true that there are few disease processes which do not leave their impress on the organism in some chemical, anatomic or functional alteration. Our desire to apply the word "cure" to a treatment probably arises from the effort to keep pace with the medical charlatans who are only too anxious to guarantee so-called cures. So in hay fever—a disease which is extremely susceptible to all the changes in nervous control of the individual, with some symptoms exceedingly vague and influenced to a large extent by the imagination—it is very difficult to determine just what part this or that remedy plays in modifying the disease process, and in thus assisting in a cure.

Statistics concerning the effect of a therapeutic measure are decidedly unreliable as a guide. But few persons, and these only in rare circumstances, act on statistics alone. They act rather on experience, either their own or of others. When they do this they are on surer ground than when they rely on bare figures alone.

I have tried to be conservative in my interpretation of the results I obtained, but a very distinct impression remains that the injections have been of decided value in ameliorating the distressing symptoms. I shall expect more definite favorable results from treatment begun before the disease starts. I feel that much of the success of the treatment will depend on the judgment exercised to meet particular symptoms in each individual case. I have quite certainly satisfied myself that the treatment cannot be rigidly applied the same way to all cases. The known principles governing immunity, which are all too few, must be thoroughly understood and applied.

I am sure that Koessler was fully warranted in issuing the warning that much harm may result from the treatment unless certain precautions are taken, namely, the solutions must be sterile, they must be fresh, and they must be, as far as humanly possible, of uniform potency.

500 Brandeis Theater Building.

PSEUDOMYXOMATOUS CYST OF THE APPENDIX WITH CALCIFICATION OF WALLS

REPORT OF CASE

H. H. OGILVIE, M.D.
SAN ANTONIO, TEXAS

In referring to current and to text-book literature[1] I find that pseudomyxomatous cysts or retention cysts of the vermiform appendix are themselves a rarity or else are rarely reported. Hartman and Kindley[2] have summarized the former reports, the text-book accounts and the pathology of the condition. The formation of the cyst is, no doubt, due to chronic inflammation, occlusion and obliteration of the lumen of the appendix at or near the proximal end, together with a twisting of the appendix and subsequent adhesions to the surrounding structures. The history of the case which I wish to report coincides exactly with this theory of causation. Only one text-book of pathology out of the many which I consulted made any mention of calcification or calcareous degeneration of cyst walls. This pathologic change is the distinct feature of my case.

History.—White man, aged 22, railroad brakeman, 6 feet tall, weight 185 pounds, with negative family and personal history, was in Corpus Christi, Texas, four years ago, Sept. 10, 1909. That night he was feeling well and ate a hearty supper; later in the night he consumed a great quantity of olives. The next day he had an attack of acute indigestion which was diagnosed cholera morbus. This illness lasted for ten days; he complained at that time of pain in the right side in the region of the appendix, nausea, vomiting diarrhea and fever, which gradually subsided. After this the patient was well for three years. In the fall of 1912 the patient had a similar attack of gastritis, pain in the right hypochondrium and fever. A diagnosis of acute appendicitis was made by the physician who saw him at that time, but an operation was deemed inadvisable just then for some reason. Since this attack the patient has been well and strong and has suffered no inconvenience other than obstinate constipation. He complained, however, of something solid "tapping him on the inside" at the appendiceal region while he followed his daily work.

Oct. 3, 1913, the patient had a sudden chill, fever, aching limbs and a bronchitis, together with the additional symptoms of acute appendicitis. In other words, he had acute influenza complicated by acute appendicitis. His greatest pain was in the high appendiceal region.

Examination.—Palpation revealed a hard, irregular mass 1 inch above and 2 inches internal to McBurney's point.

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[1] The following articles may be referred to:
Corning: Albany Med. Ann., 1905, xxvi, No. 12.
Weinhold: Monatschr. f. Geburtsh. u. Gynäk., April, 1909.
Wilson: Lancet, London, 1912, ii, 1496.
Eden: Lancet, London, 1912, ii, 1498.
Hammerfahr: Deutsch. med. Wchnschr., 1913, No. 31, p. 1501.
Trotter: Brit. Med. Jour., 1910, i, 687.

[2] Hartman, Henry, and Kindley, G. C.: A Case of Pseudomyxomatous Cyst of the Appendix, The Journal A. M. A., June 6, 1914, p. 1795.

Roentgenoscopy revealed a calcareous mass of rather irregular outline to the right of the fourth and fifth lumbar vertebrae. The roentgenogram clouded the picture of the case, and the diagnosis hinged between a calcified cyst of the appendix and a ureteral calculus.

Operation.—An anterior incision was made over McBurney's point. After breaking down of the adhesions, a hard calcified mass was delivered; this proved to be the appendix. An ordinary appendectomy was performed. Examination revealed a pseudomyxomatous cyst of the appendix, whose walls had undergone calcification. The length of the mass removed was 2½ inches and the breadth 1½ inches at the widest point. The walls of the cyst were calcified almost in entirety; the part not calcified was thickened, tough, fibrous tissue, and the muscular elements were scant. The cyst contents showed a mixture of pus and mucoid material. The base of the appendix contained the mucoid substance while the distal portion showed pus. The gross specimen was submitted to the Pathological Department of the University of Texas at Galveston, and the foregoing diagnosis corroborated.

THE RELATION OF PITUITARY DISTURBANCES TO PARANOIDAL TRENDS

HENRY W. KEMP, M.D.
NEW YORK

The more recent writings and monographs on the endocrine glands have afforded the medical profession a most fascinating field for study and experimentation. As the result, the somatic manifestations of secretory and other disturbances of these glands are fairly familiar and will not be dwelt on here.

In addition, however, to the pathognomonic somatic symptoms, disturbed functioning of the ductless glands gives rise to marked psychic phenomena of varying character and intensity, from idiocy and mental lethargy to the most agitated and apprehensive states. Thus far, I believe, these phenomena have failed to receive the attention which should be accorded them, and a great field is here opened to our American psychiatrists.

While the psychotic symptoms vary with the various glands affected, and in the same glandular disturbances in various individuals, yet in all cases I have seen of pituitary disturbance (not a large number, it is true), the mental symptoms have invariably been paranoidal in character.

If this statement be universally true, the possibility of paranoidal ideas being due to physical or chemical disturbances of the hypophysis has occurred to me. In the literature on the subject I have not as yet seen such a suggestion.

Our state asylums yearly treat about two hundred thousand cases of insanity. It would appear, should the superintendents of such institutions concur in their advisability, that a number of experiments on the treatment of paranoidal conditions might be advantageously conducted. The proof or falsity of the idea presented above could be demonstrated, and the value or worthlessness of suitable glandular therapy in this connection determined.

This suggestion is given for what it may be worth; and, should no connection be demonstrated between paranoidal ideas and pituitary disease, the results from a large number of carefully studied cases by such competent men would well repay them and the profession generally for the time and energy expended.

855 Fresh Pond Road, Borough of Queens.

CASE OF UNUSUAL TOLERANCE TOWARD BELLADONNA

Sidney H. Adler, A.B., M.D., New York

History.—D. P., married woman, aged 31, first seen May 20, 1914, complained of severe cramp-like pains in the abdomen. She had been taking heroin hydrochlorid hypodermically for three years, owing to severe pains in the kidney regions, following several operations, and she desired to take some treatment for the cure of the habit.

Examination.—When first seen she was fairly well nourished. The heart and lungs were negative. Blood pressure was 115-85. The urine was negative. Nothing abnormal could be ascertained from abdominal palpation. The entire area around the kidney region was painful to touch. Otherwise the entire physical examination was negative.

Treatment.—The patient was prepared for the treatment by rest in bed, catharsis, and reduction in the dose of heroin to which the patient was accustomed; that is, we gave her the amount she said she was taking, and found that attacks of sneezing started toward the time the next dose was due.

May 24, the Townes-Lambert treatment was instituted. The mixture, tincture of belladonna (15 per cent.), 20 c.c., fluidextract of xanthoxylum, 10 c.c., and fluidextract of hyoscyamus, 10 c.c. was administered every hour, starting with 6 drops and advancing until 8 drops were given every hour. The dose was then advanced until it reached 16 drops. When this dose was reached, there were no effects noticed and orders were given to advance the dose until physiologic effects were evident. The dose was then run up until the patient was taking 48 drops every hour. To reach this limit the dose was increased by as much as 2 to 4 drops every few hours. Not understanding why such a great amount of belladonna and hyoscyamus could be tolerated without any symptoms except slight dryness of the throat, I called up the Townes Hospital and was told that the only suggestion they could make was that we had not a mixture containing tincture of belladonna 15 per cent., but that it contained only the U. S. P. 10 per cent. tincture. They were kind enough to furnish us with some of the mixture used in their hospital, and the patient was started on advancing doses, the first being 6 drops, and rapidly advancing doses had again no effect on the eyes, throat or skin. The mind was clear throughout, but instead of feeling drowsy, the patient had no desire to sleep. No increased irritability of the brain was noticed, nor was her speech confused at any time. For only one day did she need any aid to vision; in fact, to keep her quiet we gave her the paper and books to read.

When the dosage was again carried to 48 drops, it was held there and then slowly reduced to nearly normal dose.

The compound cathartic pills were administered as directed by Lambert.[1] Treatment was discontinued June 3, the patient having had but one dose of heroin in four days, and then only a single dose of 1/24 grain.

Tonic treatment, started toward the end of the treatment, was continued, and until the date of writing the patient has not taken any drug.

Comment.—This case was complicated by the severe pains in the kidney region, which persisted and necessitated examination.

The patient was referred to Dr. H. D. Furniss, who reported the kidneys normal, with no obstruction in either ureter or bladder. The only abnormality shown was in the ureter, which was being deflected by adhesions caused by previous operations. The kidney was fixed in a low position, the pelvis being at a level with the third lumbar vertebra.

Because of the great pain caused by the collargol injected into the ureter, the patient was given several doses of morphin sulphate, ¼ grain hypodermically.

The pains persisted through the greater part of the summer, but with returning strength and outdoor exercise they became less frequent.

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[1] Lambert, Alexander: The Obliteration of the Craving for Narcotics, The Journal A. M. A., Sept. 25, 1909, p. 984.

The dose of the mixture does not depend on the amount of drug taken by the patient, nor on the size, weight or length of time that the patient has been under the influence of the drug. Some patients, I was informed at the Townes Hospital, are under influence of the mixture while taking from only 2 to 4 drops, the average dosage being about 12 drops, and the greatest amount administered to any patient *has been 30 drops.*

It is impossible to state with precision the exact quantity which may cause death, belladonna with its component, atropin, being one of the substances whose effect, varying in different cases, seems to depend on special constitutional tendencies or idiosyncrasies of the individuals. Some persons can take a comparatively large amount with impunity, while others scarcely bear a very moderate dose without exhibiting unpleasant symptoms.

This case is reported because of the great tolerance to belladonna, the patient taking about 1 ounce of tincture of belladonna, 15 per cent., within twenty-four hours, for several days without toxic symptoms.

2493 Broadway.

ROUNDWORM WITHIN THE BODY OF A TONSIL

A. B. MIDDLETON, M.D., PONTIAC, ILL.

M. A., a girl, aged 8, of German parents, referred by Dr. E. M. Adams of Gridley, Ill., gave the following *history*: She was one of four children, all healthy; the father and the mother were the same. The parents say that the child was a fat girl till 2 years of age, at which time she had chickenpox, and has not been well since. When Dr. Adams first saw the child she was pale, anemic, thin, very much undersized for her age, with an adenoidal expression, etc. The mother says the child has had regular bilious spells for two or three days at a time once every three weeks; she never had sore throat, but is a constant mouth breather.

Both tonsils were enlarged and submerged, the right paler than the left. The child was operated on in the usual manner under a general anesthetic for the enucleation of the tonsils and adenoids. The child was on her left side, the right tonsil being in plain view. As the snare wire began to tighten, the tonsil was seen to rupture into the cavity. At once a whitish something began to present itself. Several visiting physicians, who were present, were invited to see what was thought to be an abscess cavity or large crypt empty itself of retained concretions; but the supposed concretions proved to be a roundworm that coiled itself on the roof of the mouth, making a spectacular demonstration for those present. After the worm had been removed carefully, the tonsil was taken out in the usual manner and divided, showing a cavity lined with a glycerin-like substance, which had been the home of the worm possibly for several years. Under a low power lens it was easy to see that it was a female *Ascaris lumbricoides*. These cases may not be unusual, but this is the first case I ever knew about in which a roundworm has been found in a tonsil.

The worm was about 1¼ inches long with a distinct head, and the tonsil was about the size of a medium-sized olive. Dr. Adams wrote me later that the child does not have the so-called bilious spells, enjoys good health, has a lively disposition and is getting fat.

Hat Pin Injury.—E. W., boy, aged 7, was riding in a buggy with his mother, January 24, and in some manner the point of her hat pin penetrated his right eyeball. For the next three or four days, the father used some medicine in the boy's eye that he had obtained from a physician for an inflamed eye of his own some months previous. January 29, I saw the boy for the first time; there was a large corneal ulcer completely covering the pupil and also a pronounced traumatic iritis. As far as I could determine, the lens itself was not injured. Even if the eye makes an uneventful recovery, there is practically total loss of vision because of the large ulcer.—E. A. HUNT, M.D., Burlington, Iowa.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 588)

VII

B. DEPRESSANTS: 5. OF THE HEAT CENTERS

ANTIPYRETICS AND ANALGESICS

The drugs of this group are classified conveniently *under this heading, though they are seldom used* therapeutically for the reduction of temperature alone. The discussion of their actions will be facilitated by a brief consideration of the regulation of body temperature in health and in fever.

There is no known anatomic center for the direct regulation of the body temperature, but there is certainly a coordinating mechanism, in addition to any local mechanism in the skin, whereby the temperature of the body is maintained both in health and in fever, and reference to this mechanism is made when the heat-regulating centers are mentioned.

The efficiency of the heat-regulating mechanism is shown by the fact that the production of heat may be increased 60 per cent. by taking food, or during severe exercise, without causing a rise in the temperature of the body.

Fever results from a change in the heat-regulating centers whereby they appear to economize the heat loss, so that while with any increase in the heat formation there is normally a compensating heat loss, during fever a slight increase in heat formation is attended with some increase in the loss, but not enough to prevent the temperature from rising to a given degree.

The centers do not lose control of the regulation, otherwise the temperature would continue to rise indefinitely, and in fact, during fever the centers are more sensitive to external changes in temperature and to the influence of drugs than normally. This increased sensitiveness may be looked on as the effect of stimulation of the centers by drugs or disease products. We may look on the antipyretic actions of the drugs of this group therefore, as depressant to the heat-regulating centers, preventing them from maintaining the higher temperature, which then returns toward normal. This conception led to Schmiedeberg's classifying the antipyretics of this group as fever narcotics.

The antipyretic effect of quinin is due mainly to diminished heat production through its peripheral actions; the other antipyretics of the group lower the body temperature through their central action which increases the elimination of heat, but quinin also has some central action, and the other antipyretics lessen heat formation, so that their actions differ mainly in degree.

It seems probable that fever may have a protective value in infectious diseases, since it appears to favor the formation of antibodies, and it is no longer held that hyperpyrexia is responsible for many of the pathologic changes which are found at necropsy, and which were formerly attributed to the febrile temperature which was therefore considered so dangerous.

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* This is the seventh of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

It was owing to this erroneous view that the antipyretics had an enormous vogue soon after their introduction, and for a time there was intense activity in the search for new and better drugs of this type.

QUININ

It is commonly stated that the therapeutic use of cinchona, from which quinin is prepared, began with the treatment of the Countess of Chinchon in Peru in 1638, during an attack of malaria. The Jesuits employed it in the treatment of malaria in Europe, and from the foregoing circumstances it was variously called, Chinchona bark, Cinchona, Peruvian bark, Countess' bark, Jesuits' bark or simply "the bark." At present nearly all of the quinin of commerce is obtained from cinchona cultivated in India and Java.

Quinin is a protoplasm poison and is capable of destroying various forms of animal and vegetable cells. While it exerts its toxic action on such a variety of structures, it is extraordinarily active in destroying certain low forms of life. In 1867 Binz observed that in weak solutions it killed the paramecium of hay infusion at once, and that in very dilute solutions (1:20,000) it exerted a markedly toxic action on them, though they were much more resistant to the action of other poisonous alkaloids such as morphin and strychnin. These observations led Binz to the conclusion that malaria is due to a parasite which quinin is capable of destroying readily. The correctness of this conclusion has been abundantly proved, of course.

Since the great value of quinin in the treatment of malaria depends on its destructive action on these micro-organisms, it may be worth while to present briefly the more important facts concerning their presence in the human body.

It is known that when the anopheles mosquito bites a patient suffering with malaria it takes the malarial fever organisms into its stomach with the blood which it draws; that this blood contains asexual forms and smaller numbers of others which take on the sexual form and after passing through a cycle in the body of the mosquito, are injected with the saliva into the body of a person whom the mosquito bites later. These organisms, known as sporozoites, enter the blood and attack red blood-corpuscles, assuming a form which then multiplies in the blood. The sporozoite undergoes segmentation, and with the breaking up of the red blood-corpuscles and discharge of the young parasites into the blood there occurs a paroxysm of malaria, that is, a chill followed by a hot stage, presumably due to the discharge of toxins into the blood-stream.

Quinin is most destructive to the young parasites at the time they are discharged into the blood-stream, and it is important that the administration be so timed as to secure a sufficient concentration in the blood during the time that sporulation occurs. Unfortunately, in addition to the forms which quinin destroys readily, there are others which are more resistant and which may survive to become sources of infection through the anopheles.

The testimony of eminent authorities appears to be contradictory concerning the capacity of quinin to prevent an oncoming paroxysm. Thus Osler states that quinin has no power to prevent an oncoming paroxysm which attends segmentation; Ricketts states that quinin given some hours before the time of an expected paroxysm prevents segmentation and thus prevents the paroxysm. This is in accordance with the teaching prevalent in some malarial districts, and there can be little doubt that a large dose of quinin given four hours before the time of the expected paroxysm may prevent it, but it has no influence on a paroxysm which is just beginning.

The action of quinin on the blood and its capacity for causing hemoglobinuria have been the subject of much discussion. Quinin even in dilute solution is known to be capable of destroying both the red and the white cells of the blood in vitro. Hemoglobinuria has been observed frequently after the administration of quinin, which was therefore believed to be its cause. Hemoglobinuria may occur during malarial fever, however, without the administration of quinin, and the view now held by the most eminent authorities is that quinin is not the cause of the hemoglobinuria which sometimes follows its use in malaria.

It should be remembered that washed corpuscles behave differently toward various drugs in vitro from the way they behave when those drugs are injected directly into the blood-stream. For example, saponin destroys red blood-cells suspended in normal salt solution, but when a solution of saponin is injected into the blood-stream directly, the saponin is fixed by the cholesterin present in the blood and the red blood-cells escape injury. Binz states that 1 gm. (15 grains) of quinin hydrochlorate in 10 per cent. solution may be injected intravenously without causing injury to the blood. There would then be 1 part of quinin to about 5,000 parts of blood.

Very small amounts of quinin are capable of increasing the force of muscular contraction, but slightly larger amounts decrease the force and efficiency. This is of interest with regard to the action of quinin on the heart when large doses are given, and also with reference to the action on the uterus when quinin is used to increase the force of uterine contractions during labor. One can understand why it should sometimes have the desired effect and why it should sometimes fail, owing to the difficulty of adjusting the dose with precision. It seems probable that the action of quinin will be useful when induced at such a period that a few powerful contractions will suffice to expel the fetus; but if labor is not nearly terminated the induction of a few powerful contractions may be followed by weaker ones, and labor may be prolonged through its depressant action. Fortunately, it does not cause spasm of the uterus as many of the oxytocics do.

Quinin is not used for its action on the musculature of the heart, but it is of toxicologic importance. It is also of interest to note that cinchonidin is more poisonous to the heart and much less actively destructive to the malarial fever parasites. Cinchonidin was formerly much cheaper than quinin, which it resembles closely in appearance and in physical properties, and for which it was often fraudulently sold.

Quinin lessens the action of enzymes and of oxidation and it causes a diminution in the amount of heat formed in the body through its lessening metabolism by its action on muscles and glands. With small doses this diminution in the amount of heat formed does not cause a fall in the body temperature during health, because the heat-regulating centers compensate for the change by causing a diminished loss of heat. During fever quinin acts as an antipyretic (aside from its specific action in malaria), partly through this diminution in heat production and partly by depressing the heat-regulating centers. It is said that this influence in diminishing metabolism is useful in certain fevers by preventing an undue loss of protein but it is probably of little value in this way.

Quinin has only a slight analgesic action, and this has a limited field of application.

TOXICOLOGY

The prolonged use of quinin may result in injury to various organs, but the heart, the central nervous system, the gastro-intestinal tract and the kidneys usually suffer most in such cases.

Moderate doses of quinin commonly cause ringing in the ears which lasts for some hours; large doses may cause partial or complete deafness, the effect being brief as a rule, but occasionally permanent.

Dizziness, headache, nausea and vomiting with disturbances of the circulation and respiration occasionally result, and it may cause cardiac failure; disturbances of vision are rare. Skin rashes are fairly frequent.

The average fatal dose of quinin probably lies between 8 and 15 gm. (from 120 to 240 grains), much depending on the rate of its absorption.

ABSORPTION AND EXCRETION

Even the least soluble of the salts of quinin are absorbed fairly readily from the gastro-intestinal tract. In order to secure the more rapid action the more soluble of its salts are sometimes recommended, but there are occasions when an insoluble salt is preferred because of its less pronounced bitterness. The use of the sulphate in the United States affords an example of the force of habit, the hydrochlorate, which is used almost exclusively in England, being much more soluble.

Thayer states that the rate of absorption and its total amount vary widely with the solubility of the salt used and the form in which it is administered, absorption being retarded when it is taken with the food. In view of the importance of securing the absorption of quinin at such a rate that the requisite amount will be present in the circulation at the time of segmentation of the parasites, it is unfortunate that our knowledge of the subject is so imperfect.[1]

It is probable that too much importance has been attached to the influence of the degree of solubility of the salts of quinin on their absorption, and too little attention to the selective capacity of the gastro-intestinal tract for absorbing them. The question is in need of further investigation. The utmost care should be exercised to secure aseptic conditions, when a salt of quinin is injected subcutaneously or intramuscularly, because of its destructive action on the tissues, which leads to abscess.

Quinin usually begins to appear in the urine shortly after its administration, and almost the entire amount may be excreted within two days. A part is excreted into the stomach after its subcutaneous injection.

THERAPEUTIC USES

The chief therapeutic uses of quinin have been suggested in the foregoing discussion, and the subject requires only brief consideration here.

Quinin finds its principal field of usefulness in the treatment of malaria, being one of the few directly curative agents in the materia medica.

It is a matter of little importance, so far as the action is concerned, which of the salts of quinin is used, provided the one chosen is so administered as to secure absorption at such a rate that the blood will contain the quinin some hours before and during segmentation, or when segmentation would occur if it were not prevented by the drug.

Cinchonidin has been used in some cases when an idiosyncrasy, real or fancied, prevented the use of quinin, but the slight antimalarial action and the toxicity of cinchonidin render it an unsatisfactory substitute for quinin.

Quinin is an active antipyretic, and while it may be of some value during protracted fevers, such as typhoid, by reason of its lessening metabolism, and thereby preventing excessive destruction of protein, it is not certain that this advantage will outweigh its disadvantages in such conditions.

Its use during labor has been mentioned. While it does not cause spasm of the uterus, it is not always successful in facilitating the expulsion of the fetus.

Small doses may be used as a bitter for improving the appetite and digestion; large doses have an opposite effect. It is sometimes used at the inception of a cold, but its value in such conditions is problematic. It is also used as an antipyretic and analgesic in influenza, but it is probably less effective than phenacetin and salol. Opinions differ somewhat cocerning its value in the treatment of blackwater fever.

It would not be profitable to attempt to discuss the innumerable conditions and diseases in which quinin has been used with reputed success; many of these cases merely serve to illustrate the tendency which the body shows to recover regardless of treatment—even when it is distinctly injurious—and it should hardly be necessary to state that such an active agent as quinin should never be used without having a definite action in view.

Quinin and urea hydrochlorid has been used as a local anesthetic in the same way as cocain.

Quinin is a prophylactic against malaria, and those who are exposed to the bite of the anopheles in malarial regions should take it regularly; but it is of course more sensible to screen houses and destroy mosquitoes than to trust to quinin alone.

DOSAGE

The widest diversity of opinion exists in regard to the dosage of quinin in the prophylaxis and treatment of malaria. Some authorities advise as much as 2.5 gm. (40 grains) daily during the active treatment, and smaller amounts at stated intervals afterward.

A dose of 0.6 gm. (10 grains) of a salt of quinin administered about four hours before the time of an expected paroxysm, and this dose repeated in two hours, will suffice to prevent segmentation and the paroxysm in many cases. When the paroxysm is prevented the administration of quinin should be continued for several weeks. Some advise the administration of doses of 0.3 gm. (5 grains) three times daily for one or two months; others prefer the administration of somewhat larger doses on those days when the paroxysms would fall had they continued, and none on the other days. It seems more logical, however, to use the drug every day. It is especially unfortunate that these questions of dosage have not been determined conclusively, for the continued administration of quinin in large amounts is certainly capable of causing harm in many cases, but the danger of moderate doses for two months is far less than that of an attack of malaria.

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[1] Guinea-pigs were used in a recent study of the absorption of quinin, but this would appear to be an especially unfortunate choice of animal because rodents absorb certain vegetable poisons from the gastro-intestinal tract very slowly, and apparently not at all, in some cases.

The prophylactic dose of quinin is probably 0.6 gm. (10 grains) daily, preferably taken in two parts.

The tincture of cinchona, or the compound tincture, is generally preferred when the bitter effect is desired; the dose of either is 4 c.c. (1 fluidram) taken just before eating.

MATERIA MEDICA *

The comparative value and uses of the salts of quinin enumerated above are suggested by the following table showing the relative percentage of anhydrous quinin in each and also the relative solubility in water and in alcohol.

	Per Cent. of Anhydrous Quinin	One part soluble in	
		water (parts)	alcohol (parts)
Quinin	85.5	1,750.	0.6
Quinin bisulphate	59.5	8.5	16.
Quinin hydrobromid	76.6	40.	0.7
Quinin hydrochlorid	81.5	18.	0.6
Quinin salicylate	69.9	77.	11.
Quinin sulphate	74.3	720.	86.
Quinin tannate	30.35	800.	3.
Quinin and urea hydrochlorid	60.	1.	....

Quinin and the several salts of quinin may be administered in the form of pills, capsules, cachets, tablets, troches, solutions and mixtures, but the form in which the article is administered should be adapted to the particular salt of quinin used. The solid forms, like pills and capsules, are, of course, adapted to any of the salts of quinin, while solutions of sufficient strength to be active can be made only by the use of the acid salts. Mixtures, on the other hand, are preferably used for the administration of the more or less insoluble alkaloid and tannate. A sirup of glycyrrhiza made by mixing one part of fluidextract of glycyrrhiza with three parts of sirup makes a satisfactory vehicle for any of the slightly soluble salts of quinin. A sirup of yerba santa, which was formerly much used as a vehicle for quinin, is now but seldom employed because it does not compare in elegance or efficiency with the sirup of glycyrrhiza outlined above or a sirup of chocolate, such as is generally used at the soda-water fountain of drug-stores. The commercial form of sweet chocolate is an excellent vehicle for quinin, either in the form of the sirup suggested above or as a simple mixture of quinin tannate or quinin alkaloid with the chocolate in the form of pastilles or troches.

In administering a mixture of quinin it is advisable to direct that the mouth be rinsed with a dilute solution of a weak alkali like sodium bicarbonate, before and after taking the dose of quinin, so as to avoid the bitter taste of a trace of alkaloid which may dissolve in the mouth.

SUBSTITUTES

Among the substitutes which have been proposed for the non-proprietary preparations of quinin are:

Euquinin, which is quinin ethyl carbonate and is claimed to have the same action as quinin with the advantage of being tasteless owing to its insolubility in water and alkaline medium. It is, however, sparingly soluble in water and readily soluble in alcohol and in acid liquids generally, and in solution possesses the characteristic bitter taste of quinin.

Saloquinin, a combination of salicylic acid and the salicylic ester of quinin, which is thought to have the advantage of combining the properties of quinin and of salicylic acid. It is practically insoluble in water but is soluble in acidulated water and moderately soluble in alcohol. Like euquinin, when held in the mouth for an appreciable length of time, it develops a distinct bitter taste and therefore cannot be said to be absolutely tasteless.

These complex salts probably have little or no advantage over quinin alkaloid and quinin tannate, which are much cheaper.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 591)

XX

DIPHTHERIA (CONTINUED): PROPHYLAXIS IN SCHOOLS

When it is reported to a school board and to a board of health that a schoolchild is sick with diphtheria, it should first be remembered that with every discovered case probably one other missed case occurs. Of course the sick child is isolated. The other children of this family should have cultures taken from their throats to determine whether or not the Klebs-Loeffler bacillus is present; but without waiting for the results of this investigation, each should receive an immunizing dose of 1,000 units of diphtheria antitoxin, unless their history shows that they are asthmatics or sufferers from hay fever. As it takes from twenty-four to forty-eight hours for the Schick test to develop, it seems unwise, in the case of children who have been in close contact with the infected patient, to postpone the administration of the antitoxin, until a Schick test shows whether or not they are already protected.

These children should, of course, all be forbidden to attend school, and should be isolated as far as possible from other children. If the infected child comes from a tenement house where there are many children, the other children in this tenement should also be excluded from school until it is shown that their throats contain no Klebs-Loeffler bacilli.

If several cases of diphtheria occur one after the other or more or less rapidly in a schoolroom, or in different parts of a school, all of the children who are closely associated, either at their desks, or in classes, or as chums, should have their throats tested to ascertain who are the bacillus carriers. Instruction should be carefully given to the parents of the children who are well but have been positively exposed to diphtheria, to prevent their playing with unexposed children, thus possibly spreading the disease before it is ascertained that they are free from diphtheria bacilli.

General disinfection, by fumigation, of a schoolroom which has contained several diphtheria cases is considered by most advanced sanitary experts as unnecessary and of little value. If swabs from the throats of all the children in this room are taken and the room then closed for twenty-four hours and thoroughly sprayed and washed with germicidal solutions, the other children who do not belong to the infected families may return to the schoolroom as soon as the board of health has determined which throats carry the diphtheria bacilli. It does not seem scientifically wise or economically sensible to close a schoolroom or a school building for an indefinite period when the foregoing measures will be effective in stamping out the disease.

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* Owing to lack of space the materia medica of quinin has been largely omitted. It will be included when this series is published in book form.

A child whose throat and nose is found to be free from the Klebs-Loeffler bacillus may immediately return to school, provided he is not allowed to come in contact again with a new case of diphtheria. A child whose throat does contain the diphtheria bacilli, though he is not ill, should be isolated and treated with antitoxin if he has been recently exposed, or with the method suggested above for treating carriers, if he has apparently not been recently exposed. Under any circumstances, such a child should not be allowed in school.

The throats of the teachers and instructors in the schools in which diphtheria has occurred should also be tested. Other members of the family in which there is a patient with diphtheria should be examined and if they are found free from the bacilli and do not come in contact with the patient, they can with propriety live at home and attend to their regular occupation. This is on the supposition that the infected patient is properly quarantined (which means the kind of quarantine advised by the board of health), is attended by a physician, and is cared for by a nurse, or by one person who remains isolated with the patient, at least as far as close contact with others is concerned. There is no reason why the nurse should not change her clothing and go out for fresh air daily. She should not go into stores or ride in cars where she might give the disease to others, as she is likely to carry the germ in her own throat, though being herself immune.

TREATMENT

A. Isolation

It should be again urged that a throat with spots or membrane should be considered as likely to be diphtheritic until a culture has proved it not to be. Such a patient should be isolated in the best room available, looking toward the possibility of the disease being diphtheria and a nurse being required. Other children of the family must be excluded from contact with this patient. If the case is clinically one of follicular tonsillitis, the physician may wait for a positive test before giving antitoxin. If, however, the case is clinically diphtheria, antitoxin should be given without a report being waited for, provided there is nothing in the history of the patient to show that there will be any hypersusceptibility to horse serum. If the disease is diphtheria, and the patient is in a tenement where it is impossible to carry out isolation, he should be removed to a contagious disease hospital, if the city has one. Whether it is follicular tonsillitis, or other streptococcic infection, or diphtheria proper, gargles and local cleanliness of the throat should be immediately inaugurated, and when this is properly carried out, the danger of infection of others is reduced to a minimum.

It is hardly necessary in this day, in which the advisability of sunlight, a large room, an adjacent bathroom, the absence of all unnecessary draperies, furnishings, rugs, etc., for a proper isolation room are so well understood, to describe the needs in detail. Instruction should be given the family in the minor details of the prevention of infection of others. A properly trained nurse well understands the necessity for burning wooden tongue depressors, wooden swabs, the gauze and cotton used around the patient's nose and mouth, and washcloths; the use of liquid soap; simple but effective cleanliness of the patient's face, hands, and body; boiling of all eating and drinking utensils; disinfecting the toothbrush with non-poisonous germicides; allowing the bed clothing and bed garments to stand in germicidal solutions before being sent to the wash; frequent washing of her own hands in germicidal solutions; and gargling her own throat with peroxid hydrogen solutions. These are all subjects of general knowledge by physicians and nurses.

B. General Care of Patient

High fever is not frequent in diphtheria, unless the case has been neglected. Consequently, the patient should receive, almost from the beginning, plenty of nutritious food. The exact diet, of course, depends on the age of the patient. The frequency with which the nutriment is given depends on the amount that is taken; if the nourishment is liquid and in small amount, it should be given every three hours. The food should represent all the elements that the patient needs for nutrition, namely, a considerable amount of protein, a goodly amount of starch, sugar, iron, salt and fruit salts, and plenty of water. Milk, oatmeal gruel, eggs, meat juice well salted, toast, butter, and the whole, or the juice, of one or two oranges, would represent the food needed. With or without meat, it is well to give a diphtheria patient iron, and no preparation is better than the tincture of iron chlorid in 5-drop doses, three times a day, given in fresh lemonade or orangeade, after nourishment.

However well the gastric juice inhibits the growth of the bacteria, it is always wise for a patient to gargle, or be sprayed, before taking food, so that the mouth and throat will be as clean as possible.

The bowels should be moved daily by some simple laxative, if they do not move without such help.

While a diphtheria patient should have plenty of fresh air and all the sunlight possible, he should be kept warm. He should not be allowed to become chilled, as the toxins of this disease cause depression and the patient's temperature may be quite low, and the hands and feet easily become cold. Even if the temperature is high, the bathing should be by warm sponge bath.

C. Antitoxin

The Revision Committee of the Pharmacopeia will probably decide that the average dose of diphtheria antitoxin should be stated in the next Pharmacopeia as 10,000 units. Recent investigations by Schick[1] show that the dose of antitoxin advisable for ordinary cases of diphtheria can be based on the weight of the individual. Schick finds that 100 units of antitoxin per kilogram of weight is sufficient to combat the toxin in diphtheria in all ordinary cases, and in severe cases 500 units per kilogram is more than sufficient. In other words, enormous doses of antitoxin are not needed, which has long been the belief of Park of New York. This is especially true if the antitoxin is given early. A kilogram equals 2 1/5 pounds avoirdupois, and a child weighing 45 pounds, in an ordinary case of diphtheria, should be given 2,000 units of antitoxin; while if the case is severe, or in nasopharyngeal or laryngeal types, 10,000 units would be all sufficient. By the same method of decision as to the dose, an adult of about 130 pounds should receive 6,000 units in a mild case, and 30,000 units if the diphtheria is of malignant type, or has affected parts where the danger of absorption is greater.

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[1] Schick, B.; Kassowitz, K., and Busacchi, P.: Experimentelle Diphtherie Serum-Therapie beim Menschen, Ztschr. f. d. ges. exper. Med., 1914, iv, 83. The Proper Dosage of Diphtheria Antitoxin, editorial, THE JOURNAL A. M. A., Dec. 12, 1914, p. 2134.

It seems quite probable that if such doses could be administered on the first day of the infection with the Klebs-Loeffler bacillus, no more antitoxin will be needed in such cases, and that death from this disease will be reduced to a minimum. It may be wise to give a young child a smaller dose, but it has not been shown, with the concentration of the serums now offered, that locally any harm is done by this injection, or that systemically (except in patients who have received antitoxin in longer or shorter time before, or in patients who are asthmatics or hay fever subjects, or are particularly susceptible to emanations from horses), antitoxin ever does any harm. A slight rash will occur in about half the cases in which antitoxin is used, but such simple eruptions are harmless. The rash may be scarlatiniform in type, or papular, or urticarial. It may occur within a few hours after the injection, or may not occur for some days. If it is in large amount, there may be increased temperature. Mild albuminuria is apparently no more liable to occur from the antitoxin injection than it is from the diphtheria.

The subject of antitoxin injection and dosage has been ably considered by Dr. Woody[2] and by the physicians who discussed his paper. Woody advises that when both tonsils are covered with exudate of more than one day's duration, the smallest dose of antitoxin should be 30,000 units. If both tonsils and the soft palate show membrane, and especially if the nose is involved, and the history shows a duration of three days or more, he would give 150,000 units as the smallest amount. When the nose alone is affected, he believes 20,000 units should be the dose; and in laryngeal diphtheria 30,000 units as the smallest dose is advised. If the case has been a neglected one and there are serious symptoms of toxemia, and especially in nasopharyngeal cases, in which the absorption of toxins is so rapid, he recommends the administration of from 50,000 to 150,000 units. While this dosage seems large, we should note the conclusions offered by Woody after his extensive tabulated experience, namely, that with these large doses there is more rapid local cure and quicker improvement in the patient's general condition, a permanence of the cure, an avoidance of complications, a reduction of mortality, and withal, such dosage is apparently harmless.

Dr. Park of New York, in discussing Woody's paper, advises nearly as large doses, namely, 5,000 units in mild cases, 10,000 in severe, and 20,000 in malignant cases. In toxic cases in which the danger is serious and imminent, he would use the antitoxin intravenously, stating that "10,000 units intravenously is worth 100,000 units subcutaneously." He states his belief that "40,000 units will save any patient that 1,000,000 will."

In a more detailed discussion of diphtheria, Woody[3] brings out some points which we should continually bear in mind. He says: 1. "Diphtheria is essentially a local disease whose harmful effects are produced by certain toxic substances elaborated by the diphtheria bacillus."

2. "The toxin of diphtheria readily reaches all portions of the body by means of the lymphatic circulation." This toxin shows a tendency to attack the kidneys, the nervous system, and the heart. The action of this toxin is inhibited only by the formation of antitoxin in the body, or the introduction of antitoxin into the body.

3. He classifies untoward symptoms following the use of diphtheria antitoxin as: (*a*) Those that occur in eight or ten days after the first injection with symptoms of fever, rash, joint pains, and at times slight albuminuria and edema. In Woody's experience this form of serum sickness occurs in 30 per cent. of the cases of antitoxin injection. (*b*) A similar reaction which may occur after a second dose of antitoxin, provided the source of the antitoxin is the same (that is, the same animal has been used), and which will come on more rapidly and be more intense and last a shorter time. (*c*) Anaphylactic shock or collapse, which he has elsewhere stated to be rare, which may occur after a second injection, and occasionally after the first one.

Smith[4] and Park[5] have shown that when antitoxin is given subcutaneously, it takes from three to four days before the maximum amount of antitoxin is circulating in the blood. If the antitoxin is given intramuscularly this period is shortened. From these findings, therefore, the conclusion should be made that if the case is urgent and the toxemia serious, antitoxin should be administered intravenously; if the case is severe and the diagnosis has not been made early, antitoxin should be given intramuscularly; in ordinary or mild cases, and on the first day or two of the disease, it may be administered subcutaneously.

D. Care of the Throat

It would be just as sensible to perform a major operation with the most perfect technic and yet take no means whatever of preventing infection, as it is to administer antitoxin in proper dose in diphtheria and then to take no proper care of the throat. It should be remembered that diphtheria is primarily a local disease, that the antitoxin combats only the toxins of the Klebs-Loeffler bacillus, that other germs are always found in a diphtheritic throat, and that local putrefaction and septic infection readily occur if the throat and nose are not properly treated. While the antitoxin is hastening the throwing off of the membrane or inhibiting its further formation, the surface of this membrane must be washed off or cleansed gently, but frequently. All odor and all danger of secondary infection are removed by proper treatment of the part affected. Although germicides cannot kill the germs deep in the mucous membrane, or those that are protected by an overlying exudate, a certain large portion of the surface bacteria are surely killed by as simple a gargle as hydrogen peroxid solution. More active and more irritant germicidal gargles or germicides that are sources of danger when swallowed, are entirely unnecessary in diphtheria.

If the child is old enough to gargle or swash the tonsils, this is the best method of cleansing the throat. If the child is not old enough, thorough spraying of the throat should be done. A solution of one part of the official Aqua Hydrogenii Dioxidi to 3 parts of warm water, freshly prepared each time, should be used as a gargle, every one and one-half or two hours during the day, and every three hours during the night. Three or four minutes after this gargle has been used, it should be followed by some simple alkaline wash, to remove the irritant effects of the hydrogen peroxid. A gargle that may be used for this secondary cleansing purpose is a teaspoonful of boric acid added to ½ glass of warm water. This will not all dissolve, but will deposit on the throat and act as a mild antiseptic. Also, there is no greater promotor of mucous secretion of the throat than boric acid; and the more the mucus is secreted, the quicker will the membrane be loosened. Or, a simple solution of ¼ teaspoonful of salt and ¼ teaspoonful of sodium bicarbonate may be added to ½ glass of warm water. The object of such a gargle and wash is to cleanse the mouth and throat of froth and pieces of membrane, mucus, mucopus, etc., and to soothe the membrane. It is frequently advisable to insufflate boric acid directly on the masses of membrane or exudate. This should be done by the physician.

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[2] Woody, S. S.: The Use of Antitoxin in Diphtheria, The Journal A. M. A., Sept. 5, *1914*, p. *861*.

[3] Woody, S. S.: Pennsylvania Med. Jour., February, 1914, p. 339.

[4] Smith: Jour. Hyg., 1907, vii, 205.

[5] Park: Boston Med. and Surg. Jour., 1913, clxxiii, 73.

After the throat has been cleansed all that is possible, it is often of value to apply tincture of iodin to the membrane or exudate. Care must be taken not to touch the healthy membrane with this solution. Lugol's solution may be applied to the parts of the throat that are not affected, which often tends to prevent development of more exudate or membrane. If there are pockets and crypts in diseased tonsils, after cleansing such, boroglycerid may be applied to heal and to prevent spreading of infection.

As frequent gargling is very tiresome for the throat, swashing is nearly, if not quite, as efficient, and should be suggested. If the child is too young to gargle or swash, the peroxid should be sprayed on, and the solutions for this purpose should be stronger, namely, 1 part to 2 parts of warm water. The cleansing spray may be used afterward. If the throat and mouth generally are irritated, a soothing gargle is as follows:

		Gm. or c.c.	
℞	Acidi borici................	2	gr. xxx
	Potassii chloratis...........	5	ʒ iss
	Aquae menthae piperitae....	200	flʒ vii

M. Sig.: Use undiluted as a gargle, as directed.

Of course, any other flavor than peppermint could be used in this mixture.

Whether or not it is advisable to use a weak hydrogen peroxid solution in nasal diphtheria is a question for individual decision of the physician; generally it is too irritant, even when used weak, and is inadvisable. Cleansing mild alkaline solutions or boric acid solutions represent the most successful treatment of nasal diphtheria used as sprays or snuffed through the nostrils. Such mild, warm solutions may be poured from a small vial or from a teaspoon into the nostril, with the head thrown back. It is inadvisable to use any of the douches that are on the market, or any syphon douche, as the pressure is too great, and fluid is often forced up the eustachian tube or into some of the sinuses. Suprarenal extract may be added to these solutions, if deemed advisable, but it should not be used too frequently. Also, the nose should not be sprayed too frequently.

As soon as the throat is clean, the frequency of the gargles should be diminished, but it should be several days before the patient is not awakened at night to gargle at least once, or better, twice.

The treatment of the throat advised for diphtheria is equally applicable to follicular tonsillitis or scarlatinal throats, and to septic sore throat.

E. General Medication

A diphtheria patient requires very little general medication, unless some complications occur. In the beginning a small dose of calomel, or a dose of castor oil may be advisable, and subsequently whatever simple laxative is needed to cause a daily movement of the bowels. The temperature does not often call for treatment. If it is high, or there is headache and backache and general aches, two or three small doses of a coal-tar antipyretic may be given. The following combination for a child 10 years old is efficient:

		Gm.	
℞	Acetphenetidini	1	āā gr. xv
	Phenylis salicylatis...........	1	

M. et fac chartulas v.
Sig.: A powder every three hours, if needed.

Later, if the temperature is high, tepid sponging is sufficient, but generally, with the ordinary low temperature of diphtheria, hot sponging for cleanliness and to increase the activity of the skin, and to remove the perspiration, should be done once or twice daily.

As suggested above, every patient with diphtheria should receive iron, either the tincture of iron chlorid, a few drops in fresh lemonade, or a 3-grain tablet of eisenzucker, three times a day, or 0.10 gm. (1½ grains) of reduced iron, in capsule, three times a day. If there is a tendency for the throat or nose to bleed, it can do no harm to add lime water to the diet, and it may be of value.

On account of the nervous depression caused by the toxins of the Klebs-Loeffler bacillus, a small dose of strychnin, not exactly as a cardiac stimulant, but more as a nervous stimulant, is advisable, provided the condition of the patient seems to require it. For a child 10 years old, 1/60 grain of strychnin sulphate, once in six hours, is generally a sufficient dose. If the child is made nervous by strychnin, it should certainly be withheld. A little coffee or tea may be given a child, as a medicine for the action of the caffein, and is of value.

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

TYPHOID VACCINE (See N. N. R., 1914, p. 259).

Lederle Antitoxin Laboratories, New York City. Schieffelin and Co., New York.)

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CANTHARIDIN (See The Journal, Jan. 2, 1915, p. 53).

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SATURDAY, FEBRUARY 20, 1915

FAR-REACHING EFFECTS OF LEAD POISONING

To one who contemplates the manifold physiologic activities which are called into progress during the period of gestation in the female, it is not surprising that damage of any sort, whether it be a physical injury or a chemical intoxication, may bring untoward consequences to both the maternal organism and the fetus. The metabolism of the mother is intimately bound up with the nutrition of the young she bears. The transmission of harm, like the communication of disease, follows as a more or less obvious consequence of the intimate connection between the female and her developing offspring. Defective conditions may accordingly affect the embryo independently of any purely hereditary factor. They are, so to speak, the result of a detrimental uterine environment.

The possibility of harm transmitted through the medium of the male is not equally obvious. The germ cell of the male is, of course, the carrier of conspicuous hereditary qualities which manifest themselves in unmistakable fashion in the offspring. This is not equivalent, however, to the contention that damage to the male may deteriorate the germ cell in a way that expresses itself by defective offspring. Nevertheless, the experiments of Stockard[1] on guinea-pigs and of Cole and Davis[2] on rabbits have indicated that alcohol has a deleterious effect on the germ cells of the male.[3]

Lead poisoning in industries in which individuals are exposed to lead in its various forms is reputed to have a detrimental effect on the offspring of the workers, whether male or female. Half a century ago Constantine Paul reported striking observations on the effects of paternal lead-poisoning—cases in which in the course of his work the father was subjected to plumbism, the mother being unaffected. He obtained the history of thirty-two pregnancies of this order; twelve of them resulted in the death of the fetus before term; twenty children were born alive, but the mortality among them was extremely large, only two surviving the third year.[4] Children so born were found particularly liable to various nervous affections. These unusual statistics have not, so far as we are aware, been refuted.

In the department of experimental breeding at the University of Wisconsin, Cole and Bachhuber[5] have clearly shown the effect of lead on the germ cells of the male, in rabbits and fowls, as indicated by their progeny. Their method involved the ingenious device of double mating, which consists in breeding a female of a certain type to two males of unlike type at the same period. In this way the male parentage of the offspring can be recognized by their distinguishing characters. One male was treated with lead, the other remained free from intoxication. It is unnecessary to quote here the actual statistics of these breeding trials. They lead to the conviction that the young produced by male rabbits which have been poisoned by ingestion of lead acetate have a lower vitality and are distinctly smaller in average size than normal offspring of unpoisoned males. In fowls likewise the poisoning of the male parent with lead results in offspring of a distinctly lower average vitality.

The outcome of these investigations furnishes food for reflection. Lead poisoning and the opportunities for it are by no means rarities. There are more than a hundred occupations in which industrial lead poisoning may more or less readily occur, and the cases of known intoxication from such sources reach into the hundreds in some of the larger cities. Plumbism may appear under most peculiar clinical guises and with most unexpected histories. These newly recognized features of the effects transmitted to a second generation complicate its manifestations more than ever.

SANITARY INVESTIGATION OF NAVIGABLE WATERS

The sanitary investigation of navigable waters, authorized by Congress in August, 1912, has been undertaken by the Public Health Service. Three types of waters were selected, the Ohio River, the Potomac River and the coastal waters along the Atlantic and Gulf shores. The watersheds of these present fundamental problems, the solution of which will be of great economic as well as sanitary value. The Ohio River is a source of water supply as well as a means of sewage disposal. The Potomac is a tidal river and is the home of great shell-fish industries. The salt waters of the ocean shores furnish no water supply, but are the receivers of sewage, and the situation of shell-fish beds. The results of the investigations of these fundamental types are expected to serve as a standard in subsequent investigations of a similar nature.

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[1] Stockard: The Effect on the Offspring of Intoxicating the Male Parent and the Transmission of the Defects to Subsequent Generations, Am. Naturalist, 1913, xlvii, 641.

[2] Cole and Davis: The Effect of Alcohol on the Male Germ Cells, Studied by Means of Double Matings, Science, 1914, xxxix, 476.

[3] Alcohol and Racial Degeneration, editorial, The Journal A. M. A., Dec. 21, 1912, p. 2261.

[4] The data are given by Adami, J. G.: Osler's Modern Medicine, 1907, i, 44.

[5] Cole, L. J., and Bachhuber, L. J.: The Effect of Lead on the Germ Cells of the Male Rabbit and Fowl as Indicated by Their Progeny, Proc. Soc. Exper. Biol. and Med., 1914, xii, 24.

The Ohio River was chosen for the study of the fundamental principles of sewage disposal and the natural processes of self purification of streams. Its length, nearly a thousand miles, and the fact that it has numerous towns and cities along its whole course, make it peculiarly appropriate for such investigation. Cincinnati, Pittsburgh, Wheeling, Portsmouth, Louisville and Paducah were selected as the centers from which to pursue the study, because at these points large amounts of sewage are discharged into the river; at some of them, industrial wastes from coal mines and iron and steel plants complicate the problem, and others are situated on or near the junctions of tributary branches where dilution can be observed. The work embraces the study of the extent, character and population of the watershed of the Ohio, the amount and character of sewage discharged, the effect of the sewage on the river and the river on the sewage, and a complete hydrographic survey of the stream and its various branches. Each substation covers from 15 to 40 miles of the river, and samples of water are collected daily and submitted to bacteriologic, biologic and chemical examination. In this way it is expected to determine the precise point to which the river can be utilized as a means of sewage disposal, while still maintaining the maximum of usefulness to the country bordering it. The sanitary survey of the Ohio River as thus outlined is nearing completion, and the data obtained will soon be available for the use of all concerned.[1]

In the same way, an exhaustive study of the Potomac River has been made, and in addition to the same problems presented by the Ohio there is also the relation of the shell-fish beds to other conditions of the river. When oysters growing in these waters are found to be contaminated with sewage, the problem is whether to remove the oyster beds or treat the sewage discharged in their vicinity. A similar question is involved in a study of the coastal waters of Chesapeake Bay and its estuaries, the gulf and its estuaries, Mississippi Sound, etc.

All the questions involved in the sanitary survey of navigable waters are of immense interest to the public health. Not only is this recognized by the communities most directly affected by rivers and sea coast, but also it is becoming more and more a concern of the whole nation. In this connection it is interesting to note that an extensive study of the boundary waters between the United States and Canada has been made by a joint commission from the two countries. This was authorized by the treaty of Jan. 11, 1909, between the United States and Great Britain, in order to fulfil the agreement of the same treaty, that the boundary waters shall not be polluted on either side to the injury of the health or property on the other.[2]

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[1] Annual Report of the Surgeon-General, U. S. P. H. S., 1914, p. 97.

[2] Month. Bull., New York State Department of Health, December, 1914, p. 423.

OILLESS COD LIVER OIL

The experimental study of the alleged nutrient value of so-called cod liver oil cordials, published in this issue by the chemist of the Connecticut Agricultural Experiment Station, Mr. J. P. Street,[1] will serve to expose in an authoritative way the unwarranted claims that have long been suspected by thoughtful students of nutrition. No one will gainsay that cod liver oil, as a natural fat, possesses the energy-yielding attributes of other representatives of this class of foodstuffs. Like other fats, it is readily digested and utilized in the body. There is nothing either unique or remarkable in this behavior. The disagreeable features of cod liver oil, from the point of view of palatability, have as a rule outweighed its availability as a nutrient, not to mention the economic question of the comparative cost of energy obtained in this form. This will help to explain why interested manufacturers have been so eager for many years to retain the reputation of the widely heralded name and at the same time avert these seemingly insuperable objections to the natural oil. The result has been the exploiting of products which are alleged to "represent" the oil, retaining all the virtues without the disagreeable oil itself.

Street's carefully conducted comparative observations under experimental conditions of maintenance and growth, well suited to bring to light the alleged efficiency of a group of widely advertised "oil-free" cod liver oil preparations, leave little to commend the latter. Certainly the alcohol which they contain in quantities up to 18 per cent. cannot be credited with any unusual nutritive or restorative potency; nor is the occasional presence of sugar worthy of peculiar emphasis. Indeed, cod liver oil itself is so far superior to these depleted "extracts" in its contribution to the nutritive functions that the claims of the latter need no longer be seriously considered. Common sense and experiment are in accord on this point.

The fact that a metabolizable fat like cod liver oil is thus clearly superior to the cordials which apparently derive their sole merit from the name which they have appropriated should not lead any one into the other extreme of enthusiasm for the natural product referred to. It is true that recent investigations by Osborne and Mendel[2] have indicated a potency of cod liver oil to promote the growth of certain animals in ways not shared by all of the naturally occurring fats, notably lard, olive oil and almond oil. McCollum and Davis and Osborne and Mendel have likewise found, on the other hand, that this growth-promoting efficiency is common to butter fat and egg yolk fat, either of which are more easily obtained and certainly more readily consumed with relish than is the unpalatable cod liver oil. There seems to be no reason, therefore, for calling on the shelves of the druggist to supply the nutrient virtues which are found in cream and butter and eggs that are a welcomed component of the dietary of persons of all ages. Where cod liver oil might be "indicated," it is quite as rational, certainly cheaper, and admittedly less distasteful to supply these common food products. Above all, let us keep foods and drugs apart; each group has its field of usefulness, but the "combinations" are likely to have no more justification or merit than the extravagant mixtures of antiquated polypharmacy.

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[1] Street, J. P.: The Comparative Nutrient Value of Cod Liver Oil and Cod Liver Oil Cordials, The Journal A. M. A., this issue, p. 638.

[2] Osborne, T. B., and Mendel, L. B.: The Influence of Cod Liver Oil and Some Other Fats on Growth, Jour. Biol. Chem., 1914, xvii, 401.

POSTANESTHETIC GLYCOSURIA, PURITY OF ETHER, AND DIET

The attention of American physicians has been called somewhat insistently of late to the alleged dangers of traces of certain impurities, notably acetaldehyd, which may occur in ether used for anesthesia; this has been coupled with the advice to use a certain brand claimed to be free of acetaldehyd. The statements as to the supposed harmful effects of these "impurities" have been decidedly indefinite, and no satisfactory evidence has been presented for their correctness.

Recent studies by Ross and Hawk[1] indicate that one result, postanesthetic glycosuria, which may follow the administration of ether and which has been attributed to the presence of "impurities," has nothing whatever to do with these. In a series of experiments on dogs, these investigators found that the administration of ether containing none of the foregoing impurities was followed, other conditions being equal, by the same degree of glycosuria as when one of the ordinarily used brands of ether was employed. There were, however, very marked differences in the manner in which animals reacted to ether, whatever its source; but these differences were found to be due to the character of the food: all dogs which had received a carbohydrate-free diet became glycosuric after ether, whereas none of those receiving a diet containing carbohydrates reacted in this manner.

These experiments show the danger of concluding, because some ethers contain traces of acetaldehyd, and because some patients may have glycosuria after ether, that the acetaldehyd and similar substances are the cause of the latter; experiments show that pure ether will have this effect if the patient is predisposed to it by certain dietary, and perhaps other, habits. Chemists and manufacturers who claim that the U. S. P. tests for the purity of ether are insufficient should present better evidence than they have so far done.

Aside from this aspect of the question, however, the publication of Ross and Hawk is of interest as another illustration of how the factor of diet is often overlooked in the study of the actions of drugs and poisons. In this connection reference may also be made to recent experiments by Opie and Alford,[2] who showed that diet exerts a profound influence on the toxicity of certain substances, namely, chloroform, phosphorus, potassium chromate and uranium nitrate, which cause necrosis of the parenchymatous cells of the liver or of the kidney; the susceptibility to intoxication with all of these substances was less after a diet rich in carbohydrates than after a diet consisting of meat. Of interest in this connection are also the experiments of Hunt,[3] performed some time ago in the Hygienic Laboratory at Washington when, among other results, it was shown that the administration of dextrose diminished the toxicity of acetone for animals.

RADIANT ENERGY AND CATARACTS

The pathologic tissue changes which result in an opacity of the crystalline lens of the eye, in the development of cataract, are still obscure. Beyond the admission that the alterations induced affect the proteins of the parts involved, little of a convincing nature can be said. Obviously one of the fundamental questions concerns the effect of radiant energy on the lens and the humors of the eye. Radiation from a quartz mercury vapor lamp, such as the now familiar Cooper-Hewitt type, can readily be made sufficiently intense to coagulate egg white and solutions of serum proteins and thus render opaque the mediums in which they are dissolved. The effective rays in bringing about this change of state in the proteins lie in the ultraviolet region of the spectrum. An investigation by Dr. Burge[4] at the Nela Research Laboratory has demonstrated that neither the radiant energy from Cooper-Hewitt lamps of 2,400 candle power, or from Mazda nitrogen-filled lamps of illuminating brilliancy, nor the light of the electric furnace or the sun produces comparable coagulating effects on the protein of the normal lens or the vitreous or aqueous humors, provided that the heat effects are properly excluded. A continuous exposure of 100 hours failed to affect the transparency of these structures in the cases investigated under conditions in which egg white was coagulated within an hour.

Here is an apparent anomaly. If radiant energy in the form of short wave lengths is allowed to fall on proteins, it is absorbed and sooner or later the albuminous substances are converted into a coagulated form. Other things being equal, the rapidity with which this change takes place depends on the intensity of the ultraviolet radiation. The fact that the unmodified lens proteins fail to coagulate in the same way under the influence of short wave lengths which readily change the serum proteins, for example, suggests that some as yet unexplained adaptative provision or protective device is present in the complex lens and humors of the eye. Radiations from the infra-red, or the visible regions of the spectrum, cannot coagulate either the modified or the unmodified lens protein, provided the coagulation due to heat be excluded.

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[1] Ross, E. L., and Hawk, P. B.: Postanesthetic Glycosuria as Influenced by Diet, Body Temperature and Purity of the Ether, Arch. Int Med., December, 1914, p. 779.

[2] Opie and Alford: Jour. Exper. Med., 1915, xxi, 1.

[3] Hunt: The Effects of a Restricted Diet and of Various Diets upon the Resistance of Animals to Certain Poisons, Hyg. Lab. Bull. 69, U. S. P. H. S., 1910.

[4] Burge, W. E.: The Effect of Radiant Energy on the Lens and the Humors of the Eye, Am. Jour. Physiol., 1914, xxxvi, 21.

The importance of the chemical character of the solvent mediums of these eye components is made evident by Burge.[4] The lens protein can be modified by solutions of calcium chlorid, magnesium chlorid, sodium silicate or dextrose too weak of themselves to affect the transparency of the lens, so that ultraviolet radiation can precipitate the modified lens protein and hence produce opacity of the lens. Analyses of senile cataractous human lenses show that calcium, magnesium and in lenses from India, silicates are greatly increased in this type of cataract. The assumption is made that the accumulation of these substances modifies the lens protein in such a way that the short waves of the spectrum can precipitate the protein, thus producing the opacity of cataract. The assumption is further made, in the case of diabetic cataract, that the accumulation of sugar in the liquids of the body so modifies the lens protein that the short waves of the spectrum can produce opacity; hence the prevalence of cataract in this disease.

The hypotheses of Burge are, of course, little more than tentative suggestions, in the light of which at least two factors in the genesis of cataract deserve further consideration. One of these concerns the modification of the lens protein by altered nutrition or the incidence of disease; the other relates to the radiation of short wave lengths by which this modified protein can be coagulated. It is an interesting fact, though perhaps little else, that those solutions of salts and organic substances which so alter the lens protein that the short waves can precipitate it, at the same time decrease the fluorescence of the lens. This suggests to Burge that there may be some relation between the latter property and the great resistance of the normal lens protein to ultraviolet radiation.

Current Comment

A CRYSTALLIZABLE URINE PROTEIN

No sooner has the keen observer in these days had his attention directed to some feature of unique pathologic interest than his alertness is rewarded by the discovery of new cases. The Adams-Stokes syndrome, not long since looked on as a novelty, has already ceased to occasion the surprise with which its characteristics were once heralded. The finding of an albuminous substance in the urine comparable in some way with the long-known Bence-Jones protein has ceased to present the rarity of clinical medicine that it did a few years ago. At present the aspects of this proteinuria most discussed relate to the origin of the albuminous substance characteristic of the condition and to the pathologic significance of the urinary product. Recently we discussed some evidence that the food intake is not the decisive causal factor in the origin of the Bence-Jones protein.[1] Most of the cases on record have a history of multiple myeloma, so that this symptom has served to differentiate the disease from other bone lesions. In view of the fact that this text-book statement is likely to stamp Bence-Jones proteinuria with a definite significance for some time to come—as early dogmatic statements in science usually do—it seems worth while to record the occurrence of a new, carefully studied case in the Hamburg-Eppendorf Allgemeines Krankenhaus,[2] in which the existence of myelomatous disease was denied on the authority of a competent pathologist after careful examination of the bone-marrow. This raises the question as to whether there is a diversity of closely related proteins of pathologic import which exhibit the general behavior, in the urine, that is described for the Bence-Jones substance. In reference to this aspect of the subject it may be added that the protein in this newest German case could be separated in crystalline form from the urine. There are a few other instances in the literature of the chemistry of the urine in which crystallization of excreted protein is recorded, notably the spontaneous crystallization first observed by Byron Bramwell and Noël Paton in 1892. Most investigators who have had an opportunity to work with the assumed Bence-Jones protein have not succeeded in obtaining it in that condition of individuality and purity which the crystalline form is commonly believed to guarantee. Failure, however, to crystallize a protein—at best a difficult task—cannot yet be made the basis of diagnostic discriminations. In calling attention to some of the novelties with respect to the Bence-Jones protein we are more than likely to stimulate the discovery of new relationships in reference thereto.

WINTER FLIES

The winter season, naturally, is not the period in which most persons are likely to take measures to prevent the breeding of flies. In the summer, when the flies are thick, the wish will be frequently heard that preventive precautions had been taken. In the course of an inspection, January 7, by the sanitary bureau of New York, in response to complaints regarding a heap of manure, dirt and rubbish not far from a public school in a crowded district of the city, a rather startling state of affairs was revealed. The heap of manure was found partly covered with tar paper and rubbish in which, despite the cold weather prevailing—and there had been not long before a series of days with the temperature well down toward zero—flies were observed to be actively breeding. The *Bulletin*[3] remarks, "This emphasizes the importance of properly caring for horse manure throughout the year and teaches anew why the filthy fly is always with us." Until definite precautions are taken during the winter to prevent the accumulation of heaps of filth and particularly piles of horse manure, in exposed situations under conditions favorable for breeding, the fly will probably continue to be the nuisance and the serious danger to health that it has always been. But it must not be forgotten that whenever we are ready to get rid of the fly nuisance, our boards of health can accomplish this purpose without enormous trouble, probably after the first year without much additional expenditure in the budget, and with little annoyance to the public generally. When it is recalled how much the absence of this undesirable pest would mean for children alone in our crowded city life, it should not be long before there is a general awakening to the necessity of taking the now well-recognized precautions during the winter that will secure great limitation, if not entire obliteration of fly breeding.

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[1] The Origin of Bence-Jones Protein in the Urine, editorial, The Journal A. M. A., Oct. 24, 1914, p. 1481.

[2] Schumm, O., and Kimmerle, A.: Ueber das Vorkommen eines krystallisierbaren nicht koagulierbaren Eiweissstoffes im Harn bei einem Fall von Magencarcinom, Ztschr. f. physiol. Chem., 1914, xcii, 1.

[3] Weekly Bull., Dept. of Health of City of New York, Jan. 16, 1915.

THE HEALTH OF OUR SUMMER RESORTS

Many of our summer resorts have acted on the policy that a good climate, charm of location and beauty of scenery are sufficient inducements to attract the summer visitor; but nowadays people are more wary and wisely look for more than this before selecting a vacation playground. The visitor wants a clean bill of health from the resort he has chosen, and is entitled to have one. Vacation typhoid is becoming known as a serious hazard. The prudent recreation seeker now finds out in advance whether or not this infection prevails at the place he has in mind, and furthermore learns what sanitary measures are being taken there to safeguard the health of the summer colony. The town of York, Maine, has recently taken steps that at once place it in the forefront of progress as far as health is concerned. The way the problem was met may well serve as a model for other summer resorts. Last year there were a number of cases of typhoid fever at York. No attempt was made to conceal the fact of the existence of the disease and its extent. The authorities very properly felt that the way to meet any danger was to face it in the open. An expert was invited to come to York and make a sanitary survey. The chief recommendation of the expert was that York needed a full time health officer. The town appropriated $2,500 a year for this purpose and appointed Mr. William Eustis Brown, a graduate of the School for Health Officers of Harvard-Technology, to the newly created position. The town of York is now spending one dollar per capita per year for health, a larger sum than is appropriated by any other American city directly for a like purpose. "Public health is purchasable," the price is moderate, and York shows by its action that it intends to enjoy the best attainable protection from disease. Other summer colonies will find it to their advantage to follow the example of York, and take the necessary measures to safeguard their citizens and the strangers within their gates. People are now advised to demand the security of health that only a well-ordered sanitary department can furnish. Our sea-shore and mountain resorts can no longer depend on nature and luck for a clean bill of health.

RAILWAY ACCIDENTS IN 1914

Accident Bulletin 52 of the Interstate Commerce Commission for the year ended June 30, 1914, shows that there was comparative improvement in the number of accidents on the steam railways of the United States during the year. The total number of casualties for the year was 202,964, of which there were 10,302 killed and 192,662 injured, a decrease compared with the previous year of 662 in the number killed and 7,646 in the number injured. It is to be regretted that the claim of one or two of the larger roads of the country that no passengers were killed on their roads during the year does not apply to all roads, for among the number killed, 265 were passengers. Of the remaining number of killed, 3,259 were employees and 6,778 were other persons classified as trespassers and non-trespassers. It is astonishing to find that doubling the number of employees killed does not quite equal the number killed of persons in no way connected with railroad operation or management or traveling as passengers. It is likewise surprising to note that among the total casualties, 202,964, the killed numbered 409 employees, and the injured 113,274 from "industrial accidents," defined in the Bulletin as "accidents not involved in train operation, but occurring to railway employees, other than trainmen, on railway premises." The total number of employees injured was 165,212, the number of passengers 15,121, and the number of other persons 12,329. While these figures represent a decrease from 1913 of 6,205 injuries to employees, 1,418 to passengers and 23 to other persons, and of 456 employees, 138 passengers and 68 other persons killed, the vast and seemingly unnecessary disproportion between the employees and others killed and injured who have nothing to do with operating or riding on trains undoubtedly calls for further improvement in operating methods, as well as for greatly increased care on the part both of employees and the public to prevent the casualties which are unquestionably the result of individual carelessness.

BLOOD AND RESPIRATION AT MODERATE ALTITUDES

In recent years our knowledge of the conditions pertaining to life at high altitudes has been greatly enriched by careful scientific investigations carried out in various parts of the world, among others at Pike's Peak, Colorado, by the Anglo-American Expedition of 1911.[1] Among other facts brought out is the observation that the pressures of carbon dioxid and of oxygen in the alveolar air decrease progressively with increase of altitude. At any rate, in persons acclimatized at altitudes of 5,000 to 14,000 feet — the latter corresponding to Pike's Peak — the lowering of the carbon dioxid pressure is in direct proportion to the diminution of the barometric pressure. It has been estimated to amount to about 10 per cent. of the sea-level value for each 100 mm. of diminution of the barometric figure. The increase in the red corpuscles of the blood at considerable heights has likewise been commented on in these columns.[2] It has become desirable to obtain supplementary data on the effect exerted at somewhat lower ranges of altitude, below the 5,000-foot level. These have been gathered by Miss FitzGerald,[3] a competent worker in this field of research. The localities chosen were in the Southern Appalachian chain, among the Blue Ridge Mountains in North Carolina, at altitudes ranging from 2,210 to 3,850 feet. The new facts elicited support, or correspond with, those collected at greater heights. In persons acclimatized at these altitudes the partial pressure of carbon dioxid in the air of the lung alveoli is invariably lower than at sea-level, so that the lung ventilation is correspondingly increased. As at higher altitudes, the percentage of hemoglobin in the blood is increased, in accord with the previously published view that for every 100 mm. fall of atmospheric pressure the percentage of hemoglobin is augmented by about 10 per cent. of the normal value for men at sea level. The same features apply to women, though greater irregularity obtains in connection with the observations on them.

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[1] Anglo-American Expedition to Pike's Peak, editorial, The Journal A. M. A., Aug. 10, 1912, p. 449.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Sanatorium Incorporated.—The Ozark Sanatorium has been incorporated at Hot Springs with a capital stock of $75,000 by Drs. Thomas E. Holland, William V. Laws and William T. Wootton.

Hospital Notes.—The mayor of Little Rock urges the erection of a city hospital at a cost of $150,000, the funds for same to be secured by a bond issue. He also suggests that the institution shall retain the name Logan H. Roots Memorial Hospital.—The Quorum Court of the Fort Smith District has appropriated $2,000 toward the erection of a detention hospital in the city of Fort Smith. The building will be located on the grounds of the Sebastian County Hospital.——The dean of the medical department of the University of Arkansas recommends the establishment of a state hospital in connection with the department which will make possible the advancement of the college to the class "A" rank. The proposed location for the hospital is in the rear of the old State House.

ILLINOIS

New Medical Society.—The Freeport Academy of Medicine and Surgery was organized, February 5, with an initial membership of 18 and the following officers were elected: president, Dr. William B. Peck; vice-president, Dr. Dupuytren L. Mease; secretary, Dr. Theophil J. Holke; treasurer, Dr. Edgar J. Torey.

Scarlet Fever at Decatur.—February 6, Decatur was placed under general quarantine by the State Board of Health on account of an epidemic of scarlet fever. It was reported that there were about 100 cases in the city and regulations were adopted as to visiting public places, violating quarantine rules, etc.

State Civil Service Examination for Food Bacteriologist.—On April 3 an examination will be held at Anna, Carbondale, Chicago, Dunning, East St. Louis, Elgin, Jacksonville, Kankakee, Lincoln, Macomb, Mt. Vernon, Peoria, Pontiac, Springfield, Urbana and Watertown to provide an eligible list for the position of food bacteriologist in the Chicago office of the State Food Commission. The salary at present is fixed by law at $1,800 a year. The limits recommended by the State Civil Service Commission are $150 to $175 a month. The examination will be open to non-residents, as well as residents, of Illinois over 25 years of age.

The duties of the position involve making bacteriological examinations (and interpreting the results of such examinations) of milk, ice cream, eggs, meat, tomato products, etc., in accordance with the dairy, food and sanitary laws.

Chicago

Personal.—Dr. Norman H. Weston dislocated his right wrist and ankle in the Central Y. M. C. A. Gymnasium, February 10.——Dr. Edward B. Weston, for many years secretary-treasurer of the National Archery Association of the United States, has resigned on account of impaired health.

Opening of the Municipal Sanatorium.—Unique in public institutions is the Chicago Municipal Tuberculosis Sanatorium which was dedicated February 16, in that at the time of the dedicatory exercises, the buildings were ready for occupancy; the heat, light, power and refrigerating plants in operation; the roads and paths laid out; the bulbs set out, shrubs and grass planted; meat was in the refrigerators, the bakery was in operation, food and other supplies were in place, beds made, and porch klondikes and summer sleeping kits all ready for use. To-day the sanatorium could take in 500 or more patients and care for them as well as if the institution had been in operation for ten years. The dedicatory exercises were attended by about 2,000 people and this, considering the distance from the city and the coldness of the day, is a marked evidence of the general public interest taken in this life-saving project. After prayer by Father Peter J. O'Callaghan, Dr. Theodore B. Sachs, president of the board of directors, gave a short address chiefly historical in character, and presented the gold master-key with key ring and tag suitably inscribed to Health Commissioner Dr. George B. Young, who accepted the key on behalf of the mayor who was unable to be present on account of illness. Senator Glackin who made the sanatorium possible by introducing the bill in the legislature, and Director W. A. Wieboldt also made addresses. At the conclusion of the dedicatory ceremonies, nurses were in attendance and conducted the guests through the institution. All buildings excepting the gate lodge, superintendent's house, garage and farm buildings are ready, and these are from one-half to two-thirds completed. The opening of the institution for patients will be delayed for about ten days that the staff personnel may be completed. Sites have been selected, plans prepared, and sewer, water and heat connections prepared for cottages for 300 additional patients and these buildings will be erected as soon as the necessity arises. Dr. J. W. Coon, formerly superintendent of the Wisconsin State Sanatorium, Wales, is superintendent and the greater part of the professional and lay staff has already reported for duty.

INDIANA

Personal.—Dr. Lewis C. Griffith, Bowling Green, who was charged with setting fire to his drug store, was found not guilty by a jury in Clay Circuit Court, February 12.——Dr. Emma Martin of Otterbein sailed February 5 for Peking, China, where she will become superintendent of a new missionary hospital under the auspices of the Methodist Episcopal Church.

Child Welfare Exposition.—A child welfare exposition is being held at Tomlinson Hall, Indianapolis, February 16 to 25. Many of the state departments and many health associations are participating, as it has the active support of both the state and the city board of health. The reason for this exposition is to show that prevention is better than cure. Model rest rooms, nurseries, kindergartens, summer missions and child's libraries are in operation, together with demonstrations in domestic science and of ideal school rooms.

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[2] Altitude and Blood-Corpuscles, editorial, The Journal A. M. A., Feb. 3, 1912, p. 344; Physiologic Features of High Altitudes, Sept. 21, 1912, p. 942; The Blood Phenomena of Altitude, July 26, 1913, p. 283; The Influence of Altitude on the Blood, Nov. 1, 1914, p. 1634.

[3] FitzGerald, Mabel P.: Further Observations on the Changes in the Breathing and the Blood at Various High Altitudes, Proc. Roy. Soc. (B), 1914, lxxxviii, 248.

Legislative Action.—All bills before the state legislature in regard to health officers have been indefinitely postponed. ——The pharmacy bill which was intended to raise the standard of pharmacy in the state has also been killed.——The eugenic bill has been changed to apply to both men and women by the house and as the senate struck out the feature applying to women, it will also probably be killed.——The bill establishing an examining and licensing board of chiropractors has been amended to such an extent that it would require three years of nine months each of attendance at a chiropractic school and also place the head of the department of anatomy at Indiana University and the head of the department of physiology of Purdue University on the examining board.

IOWA

Health Survey of Cities Planned.—The State Board of Health intends to abandon the method of requiring periodical chemical and bacteriologic examination of water supplies in favor of the more scientific method of surveys under the direction of a civil and sanitary engineer of the State Board of Health, who has been working along this line since the reorganization of the board.

Personal.—Drs. Edward T. Alford and William H. Bickley, Waterloo, have opened a clinical laboratory in Waterloo under the charge of Dr. Ivey, formerly of Mobile, Ala.—— Dr. G. Walter Barr, for nearly a quarter of a century a resident of Keokuk and for eight years secretary and executive officer of the Keokuk Medical College, has been appointed efficiency engineer on the staff of the president of Highland Park College, Des Moines.

Small-Pox in Chiropractic School.—The discovery of a case of small-pox in a student in the Palmer School of Chiropractic, Davenport, has led to the threat by city physician, Dr. George M. Middleton, Davenport, to close the school to all pupils who refuse to be vaccinated. The chiropractic method of treatment and prevention will not be recognized. The neighboring city of Rock Island, Ill., also reports a number of cases of the disease.

MARYLAND

Sanatorium for Negroes.—The city health officer of Cumberland has recommended the establishment of a sanatorium on Haystack Mountain for the care of negroes afflicted with tuberculosis.

Personal.—Dr. William Lee Smith, Riderwood, who has been confined to his bed for the past three weeks, is slowly improving.——Dr. Newell A. Christensen, in charge of the accident ward of the Mercy Hospital, Baltimore, has resigned.

To Improve Bay View Asylum.—The Board of Estimates of Baltimore city has given authority to Dr. J. Hall Pleasants, Jr., Baltimore, president of the supervisors of city charities to spend about $10,000 in improvements at Bay View Asylum. It is proposed practically to rebuild the tuberculous ward at a cost of $5,000.

Warns Against Bubonic Plague.—That Baltimore is gambling with the health of the people and the commerce of the port against the probability of an epidemic of the bubonic plague and that preventive measures ought to be taken to prevent a development of the plague here was stated by Dr. William C. Rucker, Washington, D. C., of the U. S. Public Health Service, in an address before the Public Health Conference, recently held in Baltimore. He made it plain that every municipality that failed to take preventive measures is likely to find itself in the position of New Orleans, where the government, state and city authorities were spending hundreds of thousands of dollars to wipe out the bubonic plague, which might have been prevented, had there been a rodent survey of the city. The federal government has been willing to cooperate with the city authorities of Baltimore in making a rodent survey, but the city has refused to appropriate any money for such a purpose, although Health Commissioner Gorter has asked for such an appropriation.

MICHIGAN

Personal.—Dr. Eugene Grignon, Menominee, is ill in St. Joseph's Hospital, Marinette, as the result of a cerebral hemorrhage, January 31.——Drs. Collins H. Johnston and Ralph C. Apted have been elected directors of the Grand Rapids Antituberculosis Society.

Believes in Public Meetings.—Dr. Edward T. Abrams, Hancock, a member of the State Board of Health, recently advocated that the public be asked to attend the meeting of the Houghton County Medical Society, at which three papers were to be read on small-pox and vaccination. This he felt would be a good means of giving the public a better understanding of the importance and value of vaccination in the prevention of threatened epidemic small-pox in northern Michigan.

Small-Pox in the Upper Peninsula.—Small-pox exists in nearly every copper country town and in many of the iron country towns. The outbreak at Crystal Falls is said to be the worst in the history of the upper peninsula, although the disease itself is present as yet only in a mild form. There have been no deaths. Dr. Joseph A. Crowell, Iron Mountain, has been appointed a special agent of the State Board of Health to investigate the situation in that vicinity.

MINNESOTA

Personal.—Dr. William G. Crumley, Rochester, has been appointed consulting intern in the American Hospital, Paignton, Devonshire, England.——At the annual meeting of the Antituberculosis League of Olmsted County held in Rochester, January 13, Dr. Charles H. Mayo was elected president and Dr. Walter DeW. Shelden, vice-president.

No Leper Colony for Minnesota.—Dr. Henry M. Bracken, St. Paul, secretary and executive officer of the State Board of Health, calls attention to an item in The Journal of January 23, and states that there are now only eight known lepers in the state, and three of whom no trace can be obtained. Of these eight cases, five patients are living at home and not endangering the people in their community or in their own homes, and are under proper care and treatment. The other three patients are dependents and are being cared for by their respective counties. Dr. Bracken approves a federal leprosarium, but considers the plan exploited in the lay press and mentioned in The Journal as an absurdity.

Antituberculosis Plans.—Dr. Robinson Bosworth, St. Paul, announces that the advisory commission of the State Sanatorium for Tuberculosis will ask for an appropriation of $750,000 for county sanatoriums.——At a meeting of representatives from Blue Earth, Nicollet, Brown, Watonwan, Faribault, Waseca and LeSueur counties held at Mankato, January 30, a joint sanatorium to cost $150,000 was suggested.——Yellow Medicine, Lac Qui Parle, Chippewa and Renville counties have arranged for the establishment of a sanatorium to cost $60,000.——Grant, Stevens, Douglas and Polk counties are to have a joint sanatorium to cost $60,000. ——Plans are being made for a joint sanatorium at Austin, for Steele, Dodge, Freeborn and Mower counties.——The State Advisory Commission is endeavoring to arouse public sentiment in Carleton that it may cooperate with Pine, Kanabec and Isanti counties in the establishment of a joint sanatorium.——It is also hoped that Kitson County will cooperate with Marshall and Roseau counties in plans for tri-county sanatorium.

Mayos Give Million for Research.—After long consideration the Drs. William J. and Charles H. Mayo have recently consummated their plans for the endowment of the graduate medical instruction and research work which has for years been a feature of the Mayo Clinic at Rochester, Minn. The result is the incorporation of "The Mayo Foundation for Medical Education and Research, Incorporated," with an initial endowment fund of $1,500,000. The founders are: William J. Mayo, Charles H. Mayo, Henry S. Plummer, Edward Starr Judd and Donald C. Balfour. The board of temporary trustees having in charge for the present the investment of the fund is composed of Bert W. Eaton, George W. Granger and Harry J. Harwick. The board of scientific directors is composed of Louis B. Wilson, William F. Braasch, E. Hessel Beckman, A. H. Sanford and Walter D. Sheldon. For the present the expenses of the foundation will be met by annual contributions from the Mayo Clinic, the income from the endowment being allowed to accumulate and increase the principal.

MONTANA

Personal.—Dr. Thomas D. Tuttle, Warm Springs, superintendent of the Tuberculosis Sanatorium, Galen, has resigned to accept the position of commissioner of public health of the State of Washington.

Surveyor-General Suggests Changes for State Health Board.—The surveyor-general of Montana is said to have nounced his intention of suggesting changes in the personel of the State Board of Health. These changes provide hat the board be made up of the governor, the attorney-general, the state veterinarian, one practicing physician, one chemist with a knowledge of bacteriology, one civil engineer with experience in municipal engineering and one dairyman.

NEW JERSEY

Medical Club Organized.—A medical club, to be known as the Aesculapian Club, recently has been organized among the younger practitioners of Jersey City, with twelve charter members, and the following officers have been elected: president, Dr. Charles B. P. Kelley; vice-president, Dr. George H. Mueller, and secretary-treasurer, Dr. David L. Russell.

Hospital Opened at Riverside.—The Zurbugg Memorial Hospital, a monument to the late T. Zurbugg, for years head of the Keystone Watch Company at Riverside, who left $250,000 to establish the institution, was officially opened by Mrs. Zurbugg with the handing of the keys to Dr. Alexander H. Small, Riverside, chief surgeon. February 12 Mrs. Zurbugg announced that the present quarters represent only the beginning of the work planned by her husband. The hospital in the remodeled mansion of the Zurbugg's will later be converted into a nurses home when a new hospital capable of caring for the sick of Burlington County, will be erected on grounds adjoining.

NEW YORK

Gift to the University of Buffalo.—Property valued at $125,000 has been given to the University of Buffalo by the Woman's Educational and Industrial Union, to be used as a coeducational college of liberal arts and sciences and on condition that within one year the university will raise $100,000 for endowment and that three free scholarships for women be maintained annually in the College of Liberal Arts and Sciences.

Personal.—Dr. John Van Duyn, Syracuse, celebrated the fiftieth anniversary of his entry into practice, February 5. On February 23, Dr. Van Duyn is to be the guest of honor at a banquet given by the Onondaga County Medical Association.——Dr. J. Wilson Poucher, surgeon in chief of St. Francis' Hospital, Poughkeepsie, gave a buffet luncheon recently to twenty-six members of the medical and surgical staff of the institution.——Dr. Albert Vander Veer of Albany has been chosen for regent of the University of the State of New York to succeed himself by unanimous vote in both houses of the legislature. The term is for twelve years.

Antivaccination Measure.—The Jones-Tallett bill which opposes the compulsory vaccination of schoolchildren except when there is an epidemic of small-pox in the locality of the school has been up for hearing. It is reported that Health Commissioner Hermann M. Biggs, New York City, and other officials favored the measure while many physicians from all parts of the state came to Albany to oppose its passage. Among those opposing the bill were Dr. Lewis K. Neff, New York City, chairman of the legislative committee of the State Medical Society; Dr. William J. Cruikshank, Brooklyn, representing the Kings County Medical Society; Dr. Abraham Jacobi, New York City, and Dr. Franklin C. Gram, Buffalo.

Civil Service Examinations.—The New York State Civil Service Commission announces that an open competitive examination will be held in various cities throughout the state February 27, for Director, Division of Communicable Diseases, salary $4,000; open to men only, physicians of not less than five years' standing and not more than 60 years of age; and for Director, Division of Public Health Nurses, salary $2,500; open to women only, physicians or registered nurses. All competitors must execute application blanks and file them with the commission on or before February 23. The examinations are open to residents and non-residents without restriction, but all candidates must be full citizens of the United States.——It is announced that twenty applications have been received for the position of superintendent of the new Onondaga County Tuberculosis Hospital, for which a civil service examination is to be held, February 27. The position is open to male physicians, licensed to practice in the state and the salary is $2,500 and maintenance for the superintendent and his family.

Semicentennial of Health Department.—At the February meeting of the New York Academy of Medicine, the program of which was arranged by the board of health, Dr. S. S. Goldwater presented a letter to the council of the academy stating that "For some time health authorities have been much concerned regarding the definite increase in the mortality of the higher age groups, an increase manifesting itself particularly in certain degenerative diseases like arteriosclerosis, Bright's disease, cirrhosis of the liver, apoplexy and certain malignant diseases like cancer. Much has been accomplished in recent years in saving infant lives, but it seems difficult to arouse people, or even the medical profession to the surpassing importance of instituting hygienic measures for persons in adult life. Dr. Charles F. Bolduan, director of the Bureau of Public Health Education, has been conferring with a number of prominent health authorities and suggests that something spectacular is needed to initiate a campaign to combat this increased mortality. Plans have therefore been discussed for holding an exhibiiton of adult hygiene in this city in 1916, the fiftieth anniversary of the organization of the department of health. The dignity and effectiveness of this exhibit will be increased if it is held under the auspices of the Department of Health of the City of New York, the Department of Health of the State of New York and the New York Academy of Medicine and the American Museum of Natural History. The council of the academy recommended that the academy approve of this scheme and take part in this exhibit.

New York City

Personal.—Dr. Ernest Everett Just was presented with a gold medal at the annual meeting of the National Association for the Advancement of Colored People by Governor Whitman for special research work in physiology and zoology.——Dr. Thomas W. Carey has resigned his position on the staff of the Willard Parker Hospital and has gone to Washington, D. C.

Plan Million Dollar Hospital.—At the annual meeting of the Beth Israel Hospital Association, February 11, it was announced that a new hospital building is planned to be erected on Livingston Place. It will be twelve to fifteen stories in height and accommodate 500 patients. A special feature of the hospital will be the accommodations for persons of moderate means who do not wish to be charity patients and yet are unable to pay high charges for services and attendance.

NORTH CAROLINA

Salisbury Recommended for State School.—The special legislative committee of the 1913 assembly filed its report, January 26, recommending the removal of the State School for the Blind, from Raleigh to Salisbury.

Personal.—Dr. George W. Shipp, Newton, has been elected physician for Catawba County.——Dr. Chalmers M. Van Poole, Salisbury, who has been seriously ill at his home for several weeks with ptomain poisoning, is reported to be convalescent.

OHIO

New Health Department Laboratory.—The laboratory committee of the Hamilton Board of Health has rented a building for laboratory and headquarter purposes, and has equipped the laboratory at a cost of nearly $1,000.

Personal.—Dr. Jacob A. Kimmell, Findlay, was elected chairman and Dr. Cornelia B. Kennedy, Findlay, secretary, of the Findlay Branch of the Federation of Medical Societies for the Public Health.——Dr. George W. Crile, Cleveland, who has been abroad in connection with the American Ambulance Hospital, Paris, sailed on February 13 for America.

Five-County Hospital Opened.—The Springfield Lake Tuberculosis Sanatorium, jointly established by Summit, Portage, Mahoning, Stark and Columbiana counties, at a cost of nearly $250,000, was opened February 1. The institution has accommodations for seventy-two patients and this can be doubled in case of necessity. Dr. Stanton K. Crawford, Lakewood, has been appointed superintendent of the institution.

Public Health Conference at Columbus.—On January 28 and 29, the forty-first conference of the Ohio State Department of Health, with representatives of local boards of health, was held at Columbus. This conference was for representatives of cities only. The conference was addressed by Governor Willis on the subject of health conservation. Dr. John R. McDowell, Zanesville, spoke of the health department under the commission-manager form of municipal government. The danger of polluting a public water supply by industrial connections was discussed by Mr. L. H. Van Buskirk of the State Department. He mentioned several epidemics of typhoid fever as a result of this practice in Ohio. Dr. E. R. Hayhurst, Columbus, gave a summary of the results of the Ohio Survey of Industrial Hygiene and Occupational Diseases, while Dr. E. F. McCampbell, secretary and executive officer of the State Department, discussed the contemplated work of the Ohio Public Health Federation and the public health legislation introduced into the present general assembly.

Columbus Academy Banquet.—On February 1 a complimentary dinner was tendered by the Columbus Academy of Medicine to its members. All members of the general assembly who are physicians were guests. Dr. John H. J. Upham, president of the Ohio State Medical Association, spoke of the need for unity and organization if quackery were to be vanquished and the medical profession maintain its present elevated position. Judge Wanamaker of the supreme court of Ohio addressed the members on the relation of the law to medicine. President Thompson of Ohio State University emphasized the necessity of maintaining high standards of medical education; complimented the American Medical Association on the part it had played in the past, and foresaw that the medical school must set the ideals for the profession in the future or fail in its purpose. Representative Carl D. Hoy, M.D., Columbus, spoke of the necessity of purging the profession of the fee-splitting evil, and mentioned a bill he had recently introduced with that purpose in view.

Proposed Legislation Affecting Public Health.—Among the bills introduced into the general assembly affecting the public health are two very important measures, one, directing the Ohio State Board of Health to manufacture diphtheria antitoxin and distribute it free to indigents in Ohio by means of various distributing stations, and another, to transfer the Bureau of Vital Statistics to the Ohio State Board of Health. This last measure has been approved by Dr. C. V. Chapin, health officer of Providence, R. I., and many eminent statisticians and public health workers throughout the country. The bill for the manufacture and free distribution of antitoxin has been introduced in several previous legislatures, but has always failed of passage. At present there is a working agreement with one of the large antitoxin houses to supply antitoxin to boards of health at reduced prices, but this arrangement is not completely satisfactory.——During this session of the general assembly it is also hoped to effect the passage of a bill transferring the food and drug work of the Agricultural Commission to the laboratories of the Ohio State Board of Health.

PENNSYLVANIA

Personal.—Dr. George W. Guthrie, Wilkes-Barre, who has been ill for the past six months, suffering from pleurisy, is reported convalescent and expects shortly to go to Atlantic City to hasten and complete his recovery.——Dr. W. Knowles Evans, commissioner of health of Chester, is said to be seriously ill with pneumonia.

Mellon Lecture.—Prof. John J. Abel, Johns Hopkins University, will deliver the Mellon lecture under the auspices of the Society for Biological Research of the University of Pittsburgh, at the Mellon Institute for Industrial Research, February 27, on "Experimental and Chemical Studies of the Blood and Their Bearing on Medicine." This lectureship has been endowed by Mr. Richard Beatty Mellon, Pittsburgh.

Philadelphia

Personals.—Dr. F. X. Dercum has been appointed consulting physician of the medical staff of the State Hospital for the Criminal Insane at Fairview, Wayne County.——Prof. C. Wardell Stiles of the Rockefeller Hookworm Commission delivered the ninth Weir Mitchell lecture of the College of Physicians, February 16.

West Philadelphia Stock Yards Closed.—On February 12 the West Philadelphia Stock Yards were placed under complete quarantine by Dr. Charles Schauffler of the United States Bureau of Animal Industry, and a thorough cleansing and disinfecting of the yards ordered. A consignment of cattle recently shipped here was discovered to be infected with foot-and-mouth disease.

Evans Museum to be Dedicated.—The Thomas W. Evans Museum and Dental Institute of the School of Dentistry of the University of Pennsylvania, Philadelphia, will be dedicated and opened for inspection, February 22 and 23. On the first day, the formal dedication exercises will be held with addresses by Dr. Charles Godon, Paris, France; Prof. Dr. Wilhelm Dieck, Berlin, Germany; Mr. John Howard Mummey, M.R.C.S., L.D.S. London, England; Dr. William Simon, Baltimore, and Dr. Edward Kirk, dean of the Evans Museum and Institute; presentation of key by the architect, Mr. John T. Windrim; acceptance on behalf of the Thomas W. Evans Museum and Institute Society by the president, Hon. John Weaver, and on behalf of the trustees of the University, by Dr. Edward F. Smith, provost of the University of Pennsylvania, and the conferring of the degrees by the provost. After the exercises the building will be open for inspection. On the second day the buildings will be open for inspection, exhibits of various subjects in science and education will be shown and sixty-seven clinics will be held to which the alumni and practitioners are cordially invited. The building is one of the largest on the campus and has been erected at a cost of nearly $1,000,000, as the gift of the late Dr. Thomas W. Evans, philanthropist and dentist, who practiced for many years in Paris and died in 1897.

TENNESSEE

Tributes to Surgical Dean.—At a meeting of the Shelby County Medical Association, February 2, eloquent tributes to the memory of the late Dr. William B. Rogers, Memphis, setting forth his excellences as a physician, citizen and a friend, were paid by members of the society.

Fear of Chattanooga Situation Unwarranted.—Dr. Richard H. Creel, San Juan, P. R., surgeon, United States Public Health Service, has reported to Surgeon-General Rupert Blue, Washington, D.C., that a thorough investigation shows no evidence of plague and that the situation as regards small-pox is not alarming. The total number of cases up to the date of the report, January 15, was fifty-six, with sixteen deaths. Dr. Creel reports that vaccination is extensively employed and prohibitive quarantines by neighboring towns are unjustifiable. He says that demand for evidence of successful vaccination in the traveling public from Chattanooga would not be burdensome and would meet all necessary requirements.

Vaccination in Knoxville.—The presence of virulent small-pox at Chattanooga during the fall and winter has prompted the health authorities more rigidly to enforce the vaccination ordinance, and the director of the department of health, Dr. William R. Cochrane, Knoxville, has issued an order requiring all school children in Knoxville, who cannot show a recent scar, to be vaccinated immediately. The director also urges all other persons to avail themselves of the protection afforded by vaccination. Officials of Chattanooga have invited a committee of the Knoxville Board of Commerce to visit the former city, where the small-pox situation is now well in hand. More than fifty thousand vaccinations were made in Chattanooga on account of the epidemic there. No quarantine is contemplated against Chattanooga by Knoxville.

TEXAS

Medical Staff Resigns.—Thirty-six of the forty-two members of the medical staff of St. Paul's Sanitarium, Dallas, resigned recently for reasons which they declined to disclose.

Health Officers Qualify.—Dr. William B. Collins velady, qualified as state health officer, January 28.——D illiam A. Davis, Jr., Jourdanton, registrar of vital st and secretary of the State Board of Health, qualified ame day.

Society Seeks Headquarters.—The Bexar Cou al Society has negotiated with the Central Trust C n Antonio, for the lease of five or six floors in al Trust Company's new building. The plan is to n auditorium for meetings, a library, reading room rooms, and also to rent space for offices to mem society.

New State Board Officers.—At a joint session of new state boards of medical examiners held in ruary 3, the old board adjourned sine die and the perfected organization with the following officers: Dr. Thomas J. Crowe, Dallas; vice-president, Dr. Bettencourt, Fort Worth; secretary-treasurer, Dr. McElhannon, Belton.

CANADA

National Sanatorium Offices Formally Opened.—O ary 10 the lieutenant- formally opened general offices of the N atorium Associati lege Street, Toronto. T rection of this b Mr. W. J. Gage, Toronto, 100,000. Mr. G also donated $10,000 towar rships in co with research work in tuberculosis. Since the first sanatorium was established in Gravenhurst, some sixteen years ago, the deaths in Ontario have decreased from 2,800 annually to a little over 2,000.

Personals.—Dr. James Roberts, medical officer of health, Hamilton, Ont., has been granted leave of absence, to proceed to the front with the Second Stationary Field Hospital as captain. Dr. Major H. Langs will be acting medical officer during Dr. Roberts' absence.——Dr. Howard Burnham, son of Dr. George H. Burnham, Toronto, has been sent in charge of a British Red Cross party to Montenegro. Previous to the commencement of the war Dr. Burnham was a house surgeon at the Toronto General Hospital.——Dr. Hugh A. Stevenson has been elected mayor of London, Ont.——Dr. William J. Charlton, who was recently elected the first mayor of Weston, Ont., has had his election successfully protested by his opponent, Dr. Eli F. Irwin.

University News.—Medical students from the University of Toronto will largely compose the staff of the Clearing Hospital which will accompany the Second Canadian Contingent to France. Between forty and fifty fifth-year medical students will be taken following a request for volunteers. They will be given credit for their year on enlisting. The organization of the unit is in charge of Dr. George S. Rennie, Hamilton, Ont. When it arrives in France it will be in charge of Dr. Wallace A. Scott, Toronto, who went with the first contingent. Accompanying it will be Dr. George S. Strathy and Dr. L. Bruce Robertson, Toronto, and Drs. Foster and James E. Davey, Hamilton.——Dr. H. B. Yates, Montreal, is to be second in command to Dean Herbert S. Birkett of the medical faculty of McGill University of the McGill University General Hospital, which is to go to France. The other officers who are to be appointed to the various ranks are: Drs. John M. Elder, John McCrae, J. George Adami, W. Henry P. Hill, Edward W. Archibald, A. Howard Pirie, L. J. Rhea, William G. Turner, C. P. Howard, Herbert M. Little, William B. Howell, Colin K. Russel, John W. Hutchinson, John C. Meakins, William W. Francis, J. A. MacMillan, R. H. M. Malone, Laurie H. McKim, and Mr. David Law, all of Montreal. Numerous subscriptions for the equipment of this hospital have been received by Dr. Herbert L. Birkett, among others being one from Dr. and Mrs. Casey A. Wood, Chicago.

GENERAL

Coastguard Hospital Ship.—The United States coastguard cutter, *Androscoggin*, returned to port February 1, and reported that during her last month's cruise she had given aid in one case of appendicitis and in one case of serious eye disease.

Lake Water to Be Boiled.—Secretary McAdoo issued an order February 9, prohibiting vessels on the Great Lakes and rivers from serving to their passengers water from the lake or stream over which the vessel is being navigated, unless the purity of the water has been assured. This order is the result of an investigation by the U. S. Public Health Service due to typhoid epidemics resulting from lake travel.

Congress Organized.—The American Congress of Internal Medicine was incorporated at Albany, February 2, with the object of facilitating scientific investigations by physicians interested in internal medicine and for the promotion of good fellowship. The incorporators are Drs. Reynold Webb Wilcox, Heinrich Stern, Louis Faugeres Bishop, D. Morvay Rottenberg and Thomas F. Reilly, all of New York City.

Medical Students in English Universities.—The General Council on Medical Education of Great Britain has issued an announcement showing that the total enrolment of medical students throughout the United Kingdom has been reduced by about 1,000. It is estimated that the number of those added to the profession this year will be from 200 to 300 less than the average, which means a diminution of about 25 per cent. The number of physicians annually removed from the Register for several years past has been about 800, and it is anticipated that additional losses will result from the war. The large reduction in the enrolment in medical schools, therefore, is viewed with grave concern.

More Warnings.—Dr. Walter H. O'Neal, Gettysburg, writes that a young man who goes by the name of M. E. Bergendahl of Hagerstown, Md., has been canvassing the physicians of Gettysburg, soliciting subscriptions for the *Keystone Circulating Magazine* of Philadelphia, and stating that he was endeavoring to secure a sholarship in the University of Maryland Medical School, and that each subscription received entitled him to a certain number of votes. The magazine company says that this man is a fraud and not authorized to receive subscriptions.——The Order of Owls offers a reward of $100 for the arrest and conviction of J. C. Gavil, purporting to be an organizer for the order. This man is said also to go by the name of J. O. Gamble. He has been operating in Arkansas.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Hospital, Philadelphia, a contingent bequest of $28,000, after the death of a brother and sister, by the will of Robert Johnston.

Peter Bent Brigham Hospital, Boston, $50,000; Sheran, Mass., Sanatorium for Consumptives; Childrens Island Sanatorium; Noble Hospital, Westfield, Mass., each $1,000 by the will of Mrs. Ellen R. Goldtwaithe.

Children's Hospital, Boston, $5,000 by the will of James C. Melvin, Carlisle.

Free Hospital for Poor Consumptives, Philadelphia, $7,000 by the will of Thomas McCartney.

Germantown Hospital, Philadelphia, $5,000 by the will of Miss Louise C. Rodney.

St. Joseph's Hospital, Reading, Pa., $5,000 by the will of Elizabeth A. Lippe.

For International Peace.—The Carnegie Endowment for International Peace has issued an appeal signed by the trustees for the formation and expression by the people of a strong public opinion which shall influence the minds of the negotiators who are to settle the terms of peace at the end of the present war and which shall establish a new departure in international relations. It is said that a sufficiently strong public opinion might have for its objective that definite rules of national conduct should be agreed on; that a court of competent jurisdiction be established to judge of national conformity to those rules, and that new sanctions should be provided to compel respect for the judgments rendered. The motive and spirit of the new institutions should be the safeguarding of human rights and the perfection of individual liberty.

WAR NOTES

Tetanus Antitoxin for Europe.—At a lecture before the New York Academy of Medicine, February 4, Dr. Matthias Nicoll, Jr., announced that New York City is sending 2,000,000 units of tetanus antitoxin each month to the warring nations in Europe.

French Surgeons at the Front.—In an address before the Paris Surgical Society recently, Professor Tuffier said that of the 14,000 surgeons in the army, 6,500 were at the front. Of these 93 had been killed, 260 wounded and 441 missing; 135 had been mentioned in orders for gallant conduct on the battlefield.

Personal.—The Red Cross badge of honor, second class, has been conferred on Dr. McDonald, chief surgeon of the American Red Cross Hospital unit, Budapest, and on Surgeons Jewett and Miller of the staff of the hospital.——Drs. Ethan F. Butler and Ernest P. Magruder, both of Washington, of the Servian Red Cross unit, have converted a tobacco factory at Gevgalia into a hospital with a capacity of 1,400 beds.

Relief Funds for Belgian Physicians.—In Italy the National Association of public health officials (*medici condotti*) appropriated $700 to start a fund for Belgian physicians, and other medical organizations have contributed, the Consiglio Federale degli Ordini der Medici giving $200 and the Rome ordini giving $100, and public meetings were held at Naples and elsewhere in December to solicit private subscriptions. ——In the Netherlands, relief funds were started early in December, and the *Nederlandsch Tijdschrift* has been publishing regularly since the lists of subscribers.——Our Denmark exchanges also record the donations to the relief fund started in Copenhagen.

Aid for Belgian Physicians.—Dr. Frank F. Simpson, Pittsburgh, treasurer of the committee of American physicians for the aid of the Belgian profession, calls attention in his weekly report to the devastation existent in that country:

"A recent visitor to Belgium says of the desolation there: 'No one who has not been to Belgium within the last five months can picture, can even dimly conceive that country's desolation.

'Wherever our ambulance cars went they met endless processions of refugees: endless, for the straight, flat Flemish roads are endless, and as far as your eye could see the stream of people was unbroken: endless, because the misery of Belgium is endless: the mind cannot grasp it or take it in.

'It was not flight: it was the vast, unending movement of a people crushed down by grief and weariness, pushed on by its own weight, by the ceaseless impact of its ruin.

'I saw six thousand refugees sleeping on straw in the Palais des Fêtes, packed so tight on the floor of the immense hall that there was no standing room between any two of them.

'You could not believe what you saw: you were stunned as if you yourself had been crushed and numbed in the same catastrophe.'

"An American gentleman," says Dr. Simpson, "who saw the food and clothing put into the hold of the steamship *Ynorta*, which took supplies, for the state of Virginia, to the Belgians, crossed the Atlantic on the ship and went into Belgium to watch the distribution of the articles among the people. He has returned and declares: First, that every pound of flour and every article of clothing sent from America by the relief commission is received by a Belgian; and second, that all who get such gifts are in direst need of them. Hunger seems to have broken down all class distinctions in Belgium.

"Captain Green of the steamship *Batiscan*, which sailed with food from Philadelphia on December 6, says that the suffering among the Belgian people cannot be exaggerated.

"Linden W. Bates, manager of the commission for relief in Belgium, states that within a few months the bread lines in Belgium will be 2,500 miles long, which would reach from New York to Salt Lake City.

"Physicians and their families have shared the common fate. Appeals for food, drugs and clothing are numerous and urgent. The resources of your committee have been so limited that we have not felt justified in sending anything but food to our starving colleagues. One hundred and fifty-six physicians and eleven medical societies have thus far contributed to this fund. There are approximately 142,300 physicians in the United States. If each one would contribute even a small sum, it would be possible to supply the necessary food, drugs and clothing. Do not hesitate because your check is not as large as you would like it to be. Contributions of any amount will be welcome.

"Every cent you give will be economically spent for supplies for Belgian physicians and their families. There are no charges for shipping and distribution.

"Not a cent has been spent for stenographer, stationery, stamps, etc."

For the week ending Feb. 13, 1915, the treasurer has received the following contributions:

Dr. Oswald O. Cooper, Hinton, W. Va.		$ 10.00
Dr. Franklin A. Dodge, Le Sueur, Minn.		10.00
Dr. Alfred A. Herzfeld, New York, N. Y.		10.00
Dr. Arthur W. Sieker, Plymouth, Wis.		5.00
Dr. Charles H. Cargile, Bentonville, Ark.		10.00
Dr. Albert A. Bornscheuer, Pittsburgh, Pa.		2.00
Dr. Lyn Waller Deichler, Philadelphia, Pa.		5.00
Dr. Henry T. Goodwin, New York City		5.00
Dr. Henry S. Weigle, Muncy, Pa.		5.00
Dr. James J. Keyes, Brooklyn, N. Y.		5.00
Dr. James I. Johnston, Pittsburgh, Pa.		15.00
Dr. Frederick J. Resseguie, Saratoga Springs, N. Y.		10.00
Dr. Frank H. Jackson, Houlton, Me.		5.00
Dr. Herbert L. Frost, Cleveland, O.		10.00
Dr. Philip St. L. Moncure, Norfolk, Va.		5.00
Dr. Alex. J. Braden, Duluth, Minn.		5.00
Dr. Wendell C. Phillips, New York, N. Y.		75.00
Dr. Russell S. Fowler, Brooklyn, N. Y.		25.00
Dr. John W. Farlow, Boston, Mass.		25.00
Dr. Edwin W. Link, Palestine, Tex.		10.00
Dr. Henry R. Link, Palestine, Tex.		5.00
Dr. Harold Gifford, Omaha, Nebr.		100.00
Jefferson Co. Med. Society, Birmingham, Ala.		50.00
Dr. Edgar R. McGuire, Buffalo, N. Y.		10.00
Dr. Max Einhorn, New York, N. Y.		25.00
Dr. Joseph L. Miller, Thomas, W. Va.		10.00
Dr. David Chester Brown, Danbury, Conn.		10.00
Oshkosh Medical Club, Oshkosh, Wis.		50.00
Dr. George M. Dill, Prescott, Wis.		1.00
Camden Co. Medical Society, Camden, N. J.		50.00
Dr. Joseph P. Walsh, Philadelphia, Pa.		10.00
Dr. Lawrence B. Pilsbury, Lincoln, Nebr.		5.00
Dr. Edward E. Montgomery, Philadelphia, Pa.		25.00
Dr. Joseph T. Clegg, Siloam Springs, Ark.		1.00
Dr. Kenneth B. Huffman, Bentonville, Ark.		1.00
Receipts for week ending Feb. 13		$ 605.00
Previously reported receipts		2,528.00
Total receipts		$3,133.00
Previously reported disbursements	$2,530.00	
Disbursements week ending Feb. 13, 275 boxes of food at $2.20 per box	605.00	
Total disbursements		$3,135.00
Deficit		$2.00

Frank F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Appreciates American Red Cross Work.—The French foreign office has advised the American Red Cross that the minister of war "appreciating the generous and valuable services of the American Red Cross units at Pau" is desirous of sending at least one of these units either to Dunkirk or some other place in the north or east of France where normally a considerable number of badly wounded soldiers are received. It has been ascertained that the two hospital corps units at Pau have many serious cases and the American Red Cross has therefore offered an additional hospital unit for services at Dunkirk or such other place as the French authorities may designate.

FOREIGN

Berlin Prize Goes to Toldt.—The Virchow prize plaque has been awarded by the Berlin Anthropological Society to Prof. K. von Toldt of Vienna, president of the Vienna Anthropological Society.

Medal for Coenen.—The king of Greece has sent to Prof. H. Coenen of Breslau two souvenir medals inscribed with words of gratitude for the services he rendered in the care of the wounded during the recent Greek-Turk and Greek-Bulgarian campaigns. An autographed photograph of the king accompanied the medals.

Pediatrist Appointed Member of Spanish Cabinet.—Dr. G. Alvarez, a well-known pediatrist of Madrid, has recently been appointed a member of the Cuerpo medico of the Real Camara of Spain. This call on the specialist skill of one versed in the diseases and hygiene of children is hailed by the medical and lay press as of promising augury.

The Swedish Medical Association.—This important association has ten memorial endowment funds for charity, three funds for purchasing books and for social purposes, and ten for prizes or appropriations for research work. The Regnell prize for 1914 was awarded to Prof. I. Bang of Lund for his monograph on the residual nitrogen of the blood. The jubilee prize was given to Prof. U. Quensel of the University of Uppsala for his comprehensive and important work, "The Alcohol Question from the Medical Standpoint." The recipient of the Alvarenga prize was Prof. P. Haglund for his study of scoliosis (reviewed in our Foreign Current Literature Department, February 20). The prizes, etc., are open only to Swedish physicians. The Svenska Läkaresällskapet publishes three periodicals: the monthly transactions or *Förhandlingar;* the large and handsome archives or *Handlingar*, and *Hygiea*, a fortnightly general medical periodical. The two latter are indexed and reviewed regularly in our Foreign Current Literature Department.

Deaths in the Profession Abroad.—A. Mermod, professor of ear and throat diseases at the University of Lausanne, aged 62.——L. Guaita, one of the leading ophthalmologists of Italy, professor of this chair at Florence, Italy, died December 30, aged 63. He founded the eye clinics at Bergamo and Siena and reorganized the one at Florence. He published sixty articles or books on various subjects in ophthalmology, and has lately been at work on a large atlas of the eye.——O. K. Sprengel, surgeon-in-chief of the public hospital at Braunschweig and president of the German Surgical Association, succumbed to septic infection, professionally acquired, aged 62. His works on high shoulder, traumatic coxa vara and the laparotomy incision, etc., are well known.——The cable brings word of the death from typhus of Surgeon-General Philip Pack, chief of the medical service in the Austrian army. He contracted the disease during a trip of inspection to the camps of Russian prisoners.——Dr. Moliner of Valencia, Spain, a leading spirit in the organization of the profession, in the campaign against tuberculosis and in the efforts for progress in hygiene and in public health in general. The *Siglo Medico*, which brings the notice of his sudden death, contains also, by a strange coincidence, his last written words—a ringing appeal from him to the profession at large on the necessity and advantages of closer organization of the profession throughout the country.

The Earthquake in Italy.—The *Policlinico* states that large numbers of physicians were among the victims of the earthquake, and those who survived were unable to render proper service because all dressings and drugs were buried under the ruins. Dr. De Sanctis of San Benedetto dug for a whole day in the ruins of what had been the local drug store trying to unearth some dressing material and bichlorid. The physicians connected with the state railroads were the first to bring help to the stricken province, the chief of the service despatching relief trains with dressing materials and drugs from all the larger cities outside of the devastated zone. A well-equipped hospital train with operating room was sent from Rome, and relief trains were soon on their way from Naples, Turin, Milan and Ancona. When the wounded in towns along the railway had been tended, the physicians struck out into the country, finding more victims the farther they walked. The military medical officials were soon on the spot also, and the unharmed local physicians were provided with ample supplies. The traumatic injuries, especially those of the head, were usually found covered with plaster dust, which it was a difficult and tedious matter to clear out. There was not enough antitetanus serum on hand to give all the injured a preventive injection, but hydrogen dioxid and tincture of iodin were used in abundance. The injuries were mostly compound comminuted fractures of the legs, fracture of the clavicle and extensive wounds of the scalp. Those who were dug out of the ruins after having been thus buried for several days were often found suffering from shock, and numbers of them died within a week. In many cases morphin proved remarkably effectual, better than stimulants.

PARIS LETTER

Paris, Jan. 28, 1915.

The War

NUMBER OF MILITARY PHYSICIANS KILLED, WOUNDED AND SICK

At the opening of the formal session of the Société de chirurgie, January 20, Dr. Tuffier, agrégé at the Faculté de médecine de Paris and surgeon of the hospitals, gave statistics concerning the members of the medical profession serving with the army who have been killed or incapacitated. At the end of December, of our 14,000 military physicians, 6,500 were with the armies, 793 were killed, wounded or missing (90 killed, 80 on the battlefield, and 13 dead of wounds; 260 wounded and 440 missing) and 507 were sick. Altogether, 1,300 were killed, missing or incapacitated. The courage and devotion of the medical profession has been recognized by 155 mentions in the order of the day of the army, 15 nominations of officers of the Legion of Honor and 63 nominations of chevalier of the same order. Eleven auxiliary physicians and pupils of the army health service have received a still higher token of the esteem of their chiefs, the military medal.

A MILITARY PHYSICIAN WITH NINETY-SEVEN WOUNDS

Dr. Dercle, a military surgeon who has just received the cross of a chevalier of the Legion of Honor, holds the record for the number of wounds. He bears the marks of ninety-seven. He abandoned his post only when he fell, having received three serious wounds. At present, he is undergoing his convalescence at the military hospital of Val-de-Grâce, where he received the medal awarded to him by the government for his courage and devotion.

HOSPITALITY FOR RELATIVES OF WOUNDED SOLDIERS

Under the presidency of Mme. Pierre Bonnier, M.D., there has just been founded an Oeuvre d' hospitalité aux parents des blessés et malades militaires, intended to facilitate the sojourn in Paris of provincial families whose members have come to Paris to visit wounded relatives who are being cared for in the hospitals of the Assistance publique. Members of the wounded soldiers' families are to receive, through the hospitals, a notice of the organization with a list of the hotels which belong to it. Armed with this notice, the visitors can, on their arrival at the station, claim the help of the agents of the organization, each of whom wears a knot of red and yellow ribbon on the shoulder and who will furnish them with directions and, if necessary, take them to the chosen hotel. These hotels are near the hospitals and offer a reduction of from 40 to 50 per cent. on their rooms to relatives of wounded soldiers. For any person who is in want, a room will be reserved free of charge for two days. At each hotel, and at the corresponding hospital, is a delegate of the organization who will place himself at the disposal of the patient's family during the stay of the visitors in Paris, and after their departure will act as an intermediary between the family and the patient.

TREATMENT OF WOUNDS OF WAR BY VERY DILUTE ANTISEPTIC SOLUTIONS

At one of the last sessions of the Académie des sciences, Dr. J. Danysz of the Pasteur Institute read a report on researches which he has made, drawing his inspiration from theories put forward by Dr. Roux, director of the institute. These investigations tend to show that for certain antiseptics there are dilutions which, though germicidal, are yet stimulating for the growth and reconstruction of the injured tissues. These two actions are found best associated in very dilute solutions of silver nitrate. In numerous cases this method has been used in the last two months in some of the hospitals of Paris and in some Red Cross ambulances; in all cases disinfection has been observed together with a more rapid cicatrization than with the other chemical means hitherto employed although the solutions used were extremely dilute—from 1:200,000 to 1:500,000.

A New Method of Rapid Bacteriologic Diagnosis of Typhoid Fever

This procedure, which permits the rapid diagnosis of typhoid fever and the detection of bacillus-carriers, was reported to the Académie des sciences by Dr. P. Carnot, agrégé professor at the Faculté de médecine de Paris and Dr. B. Weill-Hallé, physician of the hospitals of Paris. A U tube with a constriction in the horizontal portion is used. A layer of sterilized sand is introduced into the tube and two arms are filled with a sterile bouillon. One of the arms of the tube is inoculated with the suspected stools and the tube is incubated at 37 C. Under these conditions the germs introduced with the stools develop, but the typhoid bacilli, being much more motile than the other intestinal microorganisms, traverse the layer of sand and multiply in the second arm of the U tube in which no infected matter has been placed. The character of the bacilli is verified by the agglutination test. The method is very sensitive and allows a precise result to be obtained within a few hours.

LONDON LETTER

London, Jan. 29, 1915.

The War

THE SANITARY CONDITIONS OF THE BRITISH TROOPS: COMPARATIVE ABSENCE OF TYPHOID FEVER

While presiding at one of the Chadwick Lectures on "War and Disease" by Dr. F. M. Sandwith, Sir Frederick Treves made the statement that our sanitary arrangements in the present war were unprecedented. He says this having in view both the British war in South Africa and the Russo-Japanese War, of both of which he had experience. As a member of the Army Sanitary Committee at the War Office he could speak with assurance on the point. When the history of this war came to be written and read, one of the most astounding and magnificent features in it would be found to be the sanitary precautions that had been taken, and the sanitary measures that had been carried out, to secure the health of our soldiers, and their care in time of disease. But although typhoid might be rendered immensely less by proper education of the soldier, by the care and knowledge of the medical men, and by sanitary arrangements, it could not by these measures be eradicated. A further precaution was needed—inoculation. In South Africa and in the Russo-Japanese War, he was struck by the difference between the soldier who was informed and the soldier who was ignorant. Our men were not informed, and on going up to Ladysmith he confessed it was a dreadful sight to see men drinking water he knew to be polluted. Education had improved matters since then. Sanitary conditions that held good in South Africa were fair for the time; many things were then quite new and many under trial. The following are the latest figures showing the value of inoculation: Since the beginning of the war there have been only 421 cases of typhoid fever among the British troops; 305 were in men who were not inoculated. There have been 35 deaths. Of these deaths, 34 were men who had not been inoculated within two years. Only 1 death occurred among patients who were inoculated, and that man had been inoculated only once. When the nature of the country in which the British troops are operating is borne in mind, the efficiency of the sanitary arrangements will be all the more apparent. The small remaining part of Belgium held by the Allies has been inundated to prevent the advance of the Germans, and in consequence of the rains, the trenches in which the men stand for many hours hold water which extends up to the ankles and even higher.

THE GERMAN PRISONERS IN ENGLAND

The manner in which the German prisoners are cared for in England is shown by the following report by Dr. Athelstane Nobbs, president of the Wandsworth Division of the British Medical Association, who is in medical charge of a ship, used in time of peace for emigrant purposes, now converted into a floating prison: The dietary consists of 1½ pounds of bread, ½ pound of meat, 2 ounces of butter or margarin, ½ pound of potatoes, ½ pound of green vegetables, with tea, milk and gruel. Evening gruel has lately been added, but is not much appreciated. As to bread, there is considerable difficulty in pleasing the prisoners. They clamored for black bread, which they urged was more nourishing than white. Rye was not easy to obtain, but it was eventually obtained.

and it was hoped that all would go smoothly. But apparently English ovens do not lend themselves to the baking of rye bread. Some of the prisoners, who in private life had been bakers, were employed, but to no purpose. After much experimenting the happy medium seems to have been found by making dough composed of 2 parts of whole meal, 1 part of wheat flour, and 1 of rye. This mixture rises fairly well, and is best when of the previous day's baking. There were at first loud clamors for the sausage of the Fatherland which, being unobtainable, is not likely to appear in the menu. In the cookhouse prisoners were at first made trial of, but the inevitable happened. Just as the bakery failed even with German bakers to superintend or advise, so did the cookery prove a slip. Within twenty-four hours of the venture there was an outcry to return to English methods, and it has remained at that ever since. With the exception of the quarters allotted to the guard, the officers and navigators, the prisoners have the run of the whole deck, or rather decks. They have the fair winds of heaven with which to fill their lungs, and hot saltwater baths in moderation. They have never-ending post which brings them parcels—everything except alcohol and shore leave.

Another illustration is furnished by the camp at Stratford, where more than 200 Austrians and Germans are interned. The prisoners are permitted to deck the interior of the buildings with the German and Austrian national colors, to wear a souvenir badge, and to erect a stage at which an elaborate musical and dramatic entertainment was given in honor of the kaiser on his birthday. The title of a one-act musical comedy, "The Jolly Prisoners," is significant. The events were closed by "Die Wacht am Rhein."

ARRIVAL OF JAPANESE RED CROSS CONTINGENT

A Red Cross contingent consisting of two surgeons, a secretary, two chief nurses, twenty nurses and an interpreter have arrived at London in response to the acceptance by the War Office from the Japanese Red Cross. The head of the party is Dr. Suzeki, who served before Port Arthur in the Russo-Japanese War. Dr. Oshima, another member, is a graduate of the Imperial University of Japan, and was actually studying medicine in Germany when war was declared. He managed to escape to London, and went on to Japan, which he left again with his present colleagues. Mr. N. Otsuka was professor at the Disciples' Bible College, Tokyo, and most of the party, including the nurses, have left their civil occupations, and in several cases their husbands or wives. The nurses belong to the Red Cross League of Japan, which, founded about thirty years ago, binds its members, wherever they are, in case of emergency to respond to any call that may be made on them, and to go wherever they may be sent during the period of three years' training and fifteen years' service in the reserve.

SCARCITY OF LEECHES AS A RESULT OF THE WAR

Though leeches are not used in medicine to anything like the extent of former years, serious scarcity has arisen since the war, as the armies are now fighting in some of the best leech areas of Europe.

Traumatic Neurasthenia Without Physical Injury

It has been shown in previous letters that the workmen's compensation act is so comprehensively drawn up that workmen are entitled to compensation for injury under practically any conditions. The following case, which came before the Court of Appeal, shows that physical violence is not necessary for "injury" in the meaning of the act. A collier went to the assistance of a fellow workman who, having been badly injured, was bleeding from the head, face, ears and eyes. He picked him up and carried him away, and the injured man died a few minutes later. The allegation made was that the plaintiff had received a nervous shock which incapacitated him from work and that he therefore suffered from an accident arising in course of his employment. The court decided that the condition was, in fact, the result of an accident while at work. The presiding judge held that the nervous shock produced physiologic injury, and was the result of an accident "arising out of and in course of the employment" (the words of the act).

BERLIN LETTER

Berlin, Jan. 19, 1915.

The War

AWARD OF THE IRON CROSS

The decoration of the Iron Cross of the first class has been bestowed on Professor von Drigalski of Halle, Surgeon-General Schumburg of Hanover, brother-in-law of von Behring, and Privat-Docent Stier of Berlin. In the case of the last named, the decoration was in recognition of the rescue of the wounded when our troops were surrounded and afterward broke through the Russian armies at Lodz late in November.

ORGANIZATION OF MEDICAL SERVICE

With the complete separation of the leadership in our western and eastern theaters of war, the medical affairs of the army in the east have been placed under a special chief in the person of Surgeon-General Kern, also well known as a philosopher. In this way the medical service of the eastern army is completely independent of the surgeon-general of the army, von Schjerning.

A HEALTH SERVICE FOR BELGIUM

A German management of medical affairs of the parts of Belgium now occupied by the Germans has been established under the supervision of Surgeon-General Stechow. Garrison physicians are employed in Antwerp, Brussels, Liége and Namur who, partly assisted by Belgian officers and physicians, have organized a public health service. In the province of Namur a compulsory notification of infectious diseases which was not previously enforced has been introduced by Professor Schilling, who is serving as garrison physician and who was formerly for many years a member of the Robert Koch Institute for Infectious Diseases. The bacteriologic institute which existed in Namur has been adopted as a hygienic examination office for diagnosis. This institution heretofore was available only for private examination to the Belgian physicians. Furthermore, the establishment of sewerage which was formerly limited, has been begun. A health commission has been appointed in which German and Belgian physicians, under the presidency of the garrison physicians, consult together on matters of public health. Most Belgian hospitals which were originally monasteries had to be brought to the standard of modern hospital requirements. Sanitary closets were established, electric light introduced and Roentgen cabinets, dental departments, permanent baths and medicomechanical apparatus, etc., provided. Moreover, in some places, isolation for infectious diseases had to be provided. Typhoid patients are, as far as possible, collected at Spa. There is in Belgium an enormous prevalence of venereal diseases. This has occasioned a not inconsiderable inconvenience for our soldiers. For this reason, special attention has been devoted to a methodical campaign against this plague. In the city of Chauny, the brothel has been closed since the beginning of the war, but a similar business was established in two houses of the city, which naturally produced a nuisance, as the conveyance of infection was thereby promoted. For this reason these two houses were closed and the sick prostitutes found there and other women affected with venereal diseases were confined in another house and treated. As soon as an infection is found in a soldier, the source of infection is carefully determined and the woman from whom the infection has arisen is permanently confined. The soldiers are expressly notified of the dangers of sexual intercourse with especial reference to the circular of the German society for combating sexual diseases, and continence is recommended.

NERVOUS AND MENTAL DISEASE

The Berlin psychiatrist, Albert Moll, recently reported at an evening meeting for the consideration of military medical affairs on the results of a tour for psychiatric study through the western theater of war, the hospitals of Northern France and Belgium. Altogether relatively few insane were found, while nervous disturbances appeared somewhat more frequently. Cases of imbecility were only rarely observed. The reason for this is, first, the better education in psychiatry of military surgeons, who immediately reject such patients, and second, the fact that the registers of the subsidiary schools for feeble-minded and those of the insane asylums have been made accessible to the recruiting boards. A few cases of primary alcoholic insanity have been received in the special wards of the hospitals. Moll saw during his trip only two drunken soldiers. He holds the provision that complete abstinence be not required during the campaign to be fully justified, but regards it as desirable that presents of alcohol to the soldiers should be distributed by their superiors. In view of the sanitary conditions in France and Belgium and of the composition of the water that is available, the addition of wine to the water is required. In Liége, where a nervous department has been established in the hospital, only nineteen patients had been admitted up to the middle of November. Among these were three epileptics, three cases of anxiety neurosis and six of alcohol psychosis. This is a small number considering the large number of soldiers who are stationed in that neighborhood or pass through it. In Brussels, 120 patients were treated in the department, of whom, however, a great number were affected with organic nervous diseases, such as shot wounds of the nerves or cases of apoplexy, and also five cases of primary alcoholic insanity, thirteen of paralysis, seventeen of epilepsy and seventeen of hysteria. In a large army hospital in the neighborhood of Argonne that received a very large number of soldiers, only ten or twelve cases of insanity were observed by a psychiatrist who had seen all the patients. Cases of exhaustion psychosis have been observed, as they were in the Russo-Japanese War. Moll, however, would include these with hysteria rather than genuine insanity. Diagnosis is difficult in the field where any sort of history is lacking, and also it is difficult to decide where the treatment of cases of insanity can best be carried on. Transportation home is best secured in separate departments of the hospital train which are provided with specially trained nurses.

FROM SIR WILLIAM OSLER

Oxford, Feb. 3, 1915.

Medical Notes on England at War

FROST-BITES AND COLD-BITES

The outstanding feature of the recent admissions to the hospitals from the front has been frost-bite, a very unusual condition in British practice. The cold has been severe in Northwest France and Belgium; the men have had long exposures in the trenches, from the effects of which thousands are suffering with sore feet. To wear boots and stockings continually for a week or ten days soaked in cold mud or water and mud, passing long hours in the upright position, naturally causes vasomotor paresis with swelling, and the prolonged stasis has led in not a few cases to necrosis. The cases varied extremely. In the first place there may be nothing more than aggravated chilblain, with the stages of protracted venous stasis, edema, bullae and superficial necrosis. A lad at the Canadian Hospital, Beechborough Park, had slight tenderness of his feet which had only been swollen and blue, but over the backs of both hands and knuckles were areas of superficial necrosis. He had been in the trenches for days, his hands had been swollen, particularly the backs, and he was completely incapacitated.

Secondly, there have been cases of genuine frost-bite; the temperature was protractedly low, and widespread necrosis followed; but several men with necrosis of the toes assured me that the water in which they had stood had not been frozen. In the sequel of events no doubt all of these lacked the preliminary complete anemia of ordinary frost-bite. Gangrene never follows this stage directly, but the succeeding condition of stasis in veins and capillaries. A very common form has been great swelling, with lividity, blackness of the toes, with a slight necrosis of the superficial skin of the pads, or shedding of the nails. As in Raynaud's disease, the final condition is often very much better than one could have anticipated from the appearance of the feet at first. A man at Paignton had a curious distribution of the necrosis, confined to the sole of one foot.

Thirdly, with these conditions, with which all are familiar, there have been an unusually large number of cases to which the term "cold-bite" is more applicable. The men return with swollen feet, vasomotor paresis, not necessarily with much pain but with disability due more to the swelling, and sometimes to the great stiffness of the toes. The desquamation of the skin and hemorrhages beneath the nails indicated that this was a sequel of much more serious condition. More unusual cases have been without any obvious change, the feet looking normal but with an extreme degree of cutaneous hyperesthesia, so that the slightest touch caused wincing and the feet had to be constantly protected with a cradle. Sometimes the pain was spontaneous, or it would come on at night; but in many instances it was brought out only on attempting to stand, or when the patient was touched, or the foot moved. In several cases it was a "stocking" hyperesthesia reaching just above the ankle. One patient in the convalescent home at Blenheim Palace had evidently suffered intensely, and was badly knocked out in his nervous system. Others have shown marked neurasthenic or even hysteric manifestations. The truth is, the trenches have been a veritable hell, and it is not surprising that a good many of the men show signs of severe nervous shock.

THE LOW MORTALITY AMONG THE WOUNDED

It is intensely interesting to see a set of severe cases some weeks after their admission. Extraordinary results follow even in the severest type of cases. At the American Hospital, *patients whom I never expected to see alive were* up and about and doing remarkably at the end of a month. A man with the surface of the trochanters bare and the lower end of his thigh infected severely had the wound cleaned, and a nice amputation made, with a good stump. A man with a part of the sacrum blown away and the rectum exposed from behind had gained 10 or 12 pounds in weight, the wound was healing rapidly and the fecal fistula had healed. One is immensely impressed with the good results of treatment and the very low rate of mortality. At the Base Hospital here, among more than 3,000 cases there have been about a dozen deaths. At the Cambridge Hospital among the first 3,500 patients admitted only fifteen died—a mortality of 0.4 per cent. At the American Hospital, Paignton, there has been only one death among 700 patients—a mortality of 0.14 per cent. It has been very satisfactory to note the absence of tetanus in the recent admissions and that cases of gas gangrene have been fewer.

AN ANEURYSM CASE

I mentioned in my first letter the case of a Belgian at the Beechborough Canadian Hospital in whom the bullet passed through the mouth under the jaw, beneath the skin of the neck, and lodged below the left clavicle; the cervical triangle was filled with a pulsating mass. When first seen it looked like an ordinary traumatic aneurysm, and I felt sure that an artery must have been wounded; but after Dr. Armour had removed the bullet and relieved the tension, the pulsation ceased, and the second time I saw the patient there was nothing but the firm indurated swelling above the clavicle with disability of the arm from pressure on the nerves. Then he began to bleed freely from the throat and from the wound, and it was quite evident that an artery had been opened. Dr. Armour operated and found that the bullet had nicked the subclavian artery, which he tied successfully, and the man has made a complete recovery.

CEREBROSPINAL FEVER

Medically, the most disturbing incident has been the outbreak in various camps of cerebrospinal fever, a rare disease in this country. There had not been a very bad epidemic during the nineteenth century, but in 1905-1906, Belfast and Glasgow suffered severely, and there has been an increase in the sporadic cases during the past three years. The first Canadian contingent apparently brought the disease with them, as there were four cases at Valcartier and three cases on the voyage. There was no additional case until recently, and they have had in all about twenty-five or twenty-six, with eleven or twelve deaths. I went last week to the camp at Salisbury to see the cases. The weather has been appalling, much wind and more rain, and everywhere the mud has been ankle-deep. At the General Hospital, Netheravon, under the care of Dr. Murray Maclaren of St. John and Dr. F. G. Finley of Montreal, there were many cases of bronchitis, bronchopneumonia and rheumatism. Most of the men, however, looked very fit and seemed to have stood the hardships very well. A new hospital had just been opened for the cerebrospinal fever cases, of which there were eleven under treatment. I found a well-equipped laboratory and a full staff of workers under Dr. Arkwright of the Lister Institute, who has done much work on the meningococcus. Dr. Ellis, who has been at the Rockefeller Hospital, New York, for the past four years and who is an expert in all methods of intrathecal treatment, was in charge of the clinical work. They had only just begun a systematic investigation of the contacts, and when I left they had not detected any carrier. It is not likely that the epidemic will prove serious. It is alarming, though, as there is another infected camp not far away in the English troops, and in the city of Salisbury itself there have been ten cases and seven deaths. I was afraid at first that the Canadians were responsible for bringing the infection, but it is evident that, as is usually the case, sporadic outbreaks are occurring in different parts. There have been a few cases at Haslar; I saw two cases at the Millbank Hospital, both from the Eastern counties, and on the thirtieth I visited the Shorncliffe Camp, where they have had eight deaths, and a few cases remained in hospital. It is interesting that this is the only place during the nineteenth century that the disease appeared among soldiers.

TYPHOID FEVER

There is extraordinarily little typhoid fever among the recruits or in the patients in the hospitals from the front. Sir Frederick Treves in the *Times* of to-day gives the returns of the British troops in the present campaign—421 cases, 305 in men who were not inoculated. In the 421 cases there have been thirty-five deaths; of these thirty-four were men who had not been inoculated within two years; only one death occurred among patients who were inoculated and that man had been inoculated only once. The "Anti's" are causing a great deal of trouble in distributing their pernicious literature among the soldiers. It is a thousand pities the government does not take its courage into both hands and order compulsory inoculation. It is evidently going to be a "long, long way to Tipperary" in this war, and should typhoid fever within the next eighteen months play the same rôle as it did in the South African War, the bacillus of Eberth might very well be one of the determining factors in deciding on which side victory will fall.

Everywhere preparations are in progress for the spring and summer campaign. New hospitals are being built to meet the heavy demand when, for the first time in its history, this country will have more than 1,500,000 in the fighting line. We have had orders for another 500 beds in Oxford, which will be arranged for in barracks in the Radcliffe Observatory Field close to the Radcliffe Infirmary. Waldorf Astor, Jr., has given his beautiful place at Clevedon on the Thames as a Canadian Base Hospital, and between the house and the barracks erected on the grounds there will be 500 beds.

DEATH OF PROFESSOR VAN GEHUCHTEN

A tragic event, of which you have already heard, was the death of Professor Van Gehuchten. He had settled very happily at Cambridge working at the Research Laboratory with Dr. Strangeways, and we were so glad to be able to put him on the Rockefeller list. He died suddenly after an operation for volvulus. How the poor fellow and his family suffered at the Louvain tragedy is told in the *British Medical Journal,* January 16.

WILLIAM OSLER.

Association News

THE SAN FRANCISCO SESSION

Announcement by the Subcommittee on Hotels Regarding Reservations in Advance

The local Committee on Arrangements for the San Francisco session requests those who contemplate attending to secure their accommodations as early as possible. The committee has full assurance that those who attend can depend on the rates hereinafter quoted. The subcommittee on hotels is being assisted by the official hotel bureau, established by the exposition management, together with a committee of hotel men representing the hotel interests of San Francisco and vicinity. The purpose of this bureau is to afford protection to exposition visitors (which of course includes those attending the meeting of the American Medical Association) against increased or unreasonable hotel rates, and to provide an official bureau through which intending visitors to San Francisco in 1915 may secure hotel reservations at desirable rates, either in advance or on arrival. No hotel is admitted to registration in the bureau until it has filed its rates in full, and until these rates have been passed on by an unprejudiced committee as reasonable for location and service given. Hotels registering with the bureau guarantee that the rates quoted will not be directly or indirectly increased during 1915. The subcommittee on hotels, cooperating with this bureau, will undertake to secure reservations for all those addressing communications to it.

All hotels in San Francisco, with a few exceptions in the residence district, are less than eight years old and are modern in all respects, so that no one need fear that in engaging accommodations at the lower priced hotels, he will not find clean and modern quarters. The local subcommittee on hotels desires to avoid having too many rooms engaged for one person, and advises that in each of the hotels there is a limited number of single rooms and that in certain other hotels the same price will be charged whether the room be occupied by one or two persons. Where but one rate is quoted, it is the minimum rate. The minimum rate quoted for two persons in one room is for a room with a double bed. Twin beds call for a slightly higher tariff. Blocks of rooms have been engaged at all the leading hotels dating from June 19, the Saturday before the meeting, and these will be apportioned in order of application—first come, first served.

In submitting the present list of hotels, the subcommittee on hotels advises that a longer list will be announced later, as the Hotel Bureau has not yet all the data compiled, and it is expected that the register of the bureau will include several hundred hotels.

The local Committee on Arrangements requests that those desiring to reserve accommodations shall use the form appended to the list of hotels which appears on advertising page 21 of this issue, and mail their request to the official Hotel Bureau at 702 Market Street, San Francisco. On receipt of this request, the accommodations asked for, or those as nearly like the accommodations requested as it is possible to secure, will be reserved. The subcommittee on hotels urges Fellows to make these reservations through the subcommittee on hotels, or the official Hotel Bureau.

F. B. CARPENTER, Chairman, Subcommittee on Hotels.

The hotels listed below have already been assigned as headquarters:

General Headquarters	Palace
Medicine	Palace
Surgery, General and Abdominal	St. Francis
Pathology and Physiology	Bellevue
Stomatology	Plaza
Dermatology	Granada
Preventive Medicine and Public Health	Clift
Genito-Urinary	Manx
Hospitals	Inside Inn
Orthopedic Surgery	Stewart

Marriages

Frank Riegel Wentz, M.D., Allentown, Pa., to Miss Kathryn M. Shoemaker of Chestnut Hill, Philadelphia, February 20.

Francis William Doyle, M.D., South Deerfield, Mass., to Miss Marie Josephine McCormick of Waltham, Mass., February 3.

Frank Mason Dillard, M.D., Mineral, Va., to Miss Evelyn Wilson Dixon, at Dewberry, Hewlett, Va., Dec. 22, 1914.

Thomas Reuben Keller Gruber, M.D., Cleveland, to Miss Alma Rennick of Columbus, Ohio, February 1.

Francis Joseph Pelant, M.D., Solon, Ia., to Miss Minnie Arbes of New Ulm, Minn., February 9.

John Joseph Condrick, M.D., to Miss Edith J. Cosgrove, both of Brockton, Mass., February 1.

Jesse Harper Lander, M.D., Greenville, Tex., to Miss Elizabeth Collier Floyd, February 4.

John J. Ryan, M.D., St. Paul, to Miss Edwina Hurlbut of Oconomowoc, Wis., February 4.

Clarence Walter Hall, M.D., to Miss Media Swennes, both of Denver, Colo., recently.

Deaths

Dudley Sharpe Reynolds, M.D. University of Louisville, Ky., 1868; a Fellow of the American Medical Association and one of the most prominent ophthalmologists of the South; died at his country home near Louisville, February 4, from cerebral hemorrhage, aged 72. He was a native of Bowling Green, Ky., and served during the Civil War as assistant surgeon of U. S. Volunteers; after his graduation and a term of study abroad, he returned to Louisville where he practiced his specialty of diseases of the eye, ear, nose and throat for nearly half a century. From 1874 to 1901, he was professor of ophthalmology and otology and medical jurisprudence in the Hospital College of Medicine, Louisville, and was president of the faculty of the institution from 1891 to 1893. He was surgeon to the Louisville City Hospital from 1872 to 1892 and local surgeon of the Monon System from 1894 to 1899. His society activities included the chairmanship of the Section on Ophthalmology of the American Medical Association in 1880-1881, the presidency of the Mississippi Valley Medical Association in 1888 and the treasurership from 1899 to 1901. Dr. Reynolds was a specialist of wide reputation and of great skill; a teacher and writer of force and ability, a wise counsellor and a man universally beloved and esteemed.

Samuel Wood Langmaid, M.D. Harvard Medical School, 1864; a member of the American Laryngological Society and a well-known specialist on diseases of the throat and nose of Boston; a member of the Massachusetts Medical Society; acting assistant surgeon of volunteers during the Civil War, and later in the U. S. Marine Hospital Service; physician to the throat department of the Massachusetts General Hospital; for several years president of the Harvard Musical Association; died at his home in Brookline Mass., February 3, aged 77.

Louis A. Rodenstein, M.D. University of Pennsylvania, Philadelphia, 1859; a veteran of the Mexican War and surgeon of U. S. Volunteers during the Civil War; later surgeon of the Twenty-Second Infantry, N. G., N. Y.; a member of the New York Board of Education and Board of Police Surgeons; one of the founders of the Manhattan General Hospital in 1885 and surgeon-in-chief to that institution; died at his home in New York City, February 2, aged 80.

Abram Trego Shertzer, M.D. University of Maryland, Baltimore, 1869; fleet surgeon of U. S. Naval Volunteers during the Civil War and staff surgeon in the German service during the Franco-Prussian War; a practitioner of Baltimore for nearly fifty years; local surgeon to the Pennsylvania System and the Baltimore City Railroad; died at his home in Baltimore, January 22, from heart disease, aged 70.

D'Orsay Hecht, M.D. Northwestern University Medical School, 1898; associate professor of nervous and mental diseases in this college; attending neurologist Michael Reese, Wesley and other hospitals of Chicago; a Fellow of the American Medical Association; president of the Mississippi Valley Medical Association 1913-14; a member of various neurologic and psychologic societies; died suddenly at his home in Chicago, Feb. 16, 1915, of angina pectoris, aged 41.

Robert Shoemaker Dana, M.D. Jefferson Medical College, 1857; surgeon of the Ninth Pennsylvania Volunteer Cavalry and One Hundred and Seventh Pennsylvania Volunteer Infantry during the Civil War; at one time medical director of the Department of New Jersey, G. A. R.; for several years treasurer of the Morrisville (Pa.) Rubber Works; died at his home near Morrisville, February 1, from senile debility, aged 82.

William H. Rowe, M.D. Rush Medical College, 1882; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; formerly vice-president of the State Board of Health; surgeon-general of Minnesota since 1910; for several terms mayor of St. James, Minn., and president of the St. James Hospital; died in that institution, February 4, from nephritis, aged 56.

George Bailey Little, M.D. Rush Medical College, 1873; president of the Burlington, Iowa, Hospital Training School for Nurses; and for forty-two years a practitioner of Burlington; once president of the Des Moines County Medical Society and for eight years a member of the Burlington School Board; died at his home, January 31, from cerebral hemorrhage, aged 63.

Cyrus Fogg Brackett, M.D. Medical School of Maine, Brunswick, 1863; professor of chemistry in his Alma Mater from 1864 to 1873; professor of physics at Princeton University for thirty-five years, and since 1908 emeritus professor; a member of the American Philosophical Society and American Physical Society; died at his home in Princeton, January 29, aged 81.

Jacob Huggins, M.D. University of Pennsylvania, Philadelphia, 1860; a charter member of the Medical Association of the State of Alabama and vice-president in 1891 and 1892; a member of the state board of censors in 1898; for three years surgeon in the Confederate service during the Civil War; died at his home in Newbern, Ala., February 1, aged 77.

Edmund Dulin Laughlin, M.D. Miami Medical College, Cincinnati, 1868; Bellevue Hospital Medical College, 1872; for several terms a trustee of the Indiana Medical College and once vice-president of the Indiana State Board of Health; for many years a practitioner of Orleans, Ind.; died in the home of his son at Evansville, February 6, aged 87.

Philip J. Wardner, M.D. Rush Medical College, 1857; of Cleveland, Ohio; surgeon of the Fifty-Seventh and later of the One Hundred and Twentieth Illinois Volunteer Infantry during the Civil War; for more than thirty years retired from practice and in business in Cleveland; died at his home in that city, Dec. 20, 1914, from bronchitis, aged 82.

Patrick H. Caney, M.D. Kentucky School of Medicine, Louisville, 1892; a Fellow of the American Medical Association; physician to the Knox County (Ind.) Infirmary and secretary of the Vincennes Board of Health; for three terms coroner of Knox County; died at his home in Vincennes, Ind., January 30, from lobar pneumonia, aged 52.

Daniel Clark Stillians, M.D. Chicago Medical College, 1869; one time president of the Alumni Association of his Alma Mater; a Fellow of the American Medical Association; a veteran of the Civil War; until the past four years a resident of Chicago; died at his home in Redlands, Cal., February 12, aged 74.

George Howard Hungerford, M.D. University of Pennsylvania, Philadelphia, 1909; a Fellow of the American Medical Association; medical examiner for the Pennsylvania Railroad Company in Philadelphia; died in the German Hospital in that city, February 1, after an abdominal operation, aged 29.

Zachary Taylor Funk, M.D. Kentucky School of Medicine, Louisville, 1876; once president of the Harrison County (Ind.) Medical Society, treasurer of Harrison County and secretary of the Board of Health of Corydon; a veteran of the Civil War; died at his home Corydon, Nov. 19, 1914, aged 67.

Frank Elmer Hill, M.D. Western Reserve University, Cleveland, 1881; for thirty-two years a practitioner of Buffalo; supreme medical director of the National Order of Buffaloes, and Sovereign Medical Director of the Order of Saturn; died at his home in Buffalo, February 3, aged 55.

Bascom Kavanaugh, M.D. University of Texas, Galveston, 1913; and later assistant physician at the State Quarantine Station; who was shot near his home in San Augustine, Tex., January 7; died January 15, aged 32.

Frank Clary Anderson, M.D. Vanderbilt University, Nashville, Tenn., 1901; formerly a practitioner of Arkansas, Alabama and Colorado; died in Brookwood, Ala., January 11; from pulmonary tuberculosis, aged 34.

J. G. Lapp (license, years of practice, Ohio, 1896), a member of the Ohio State Medical Association; auditor of Monroe County, Ohio; died at his home in Woodsfield, Ohio, about January 24, from heart disease.

Joseph Tottenham Cook, M.D. Homeopathic Hospital College, Cleveland, 1881; attending physician to the Buffalo Homeopathic Hospital; died at his home in Buffalo, January 18, from facial erysipelas, aged 59.

Jonathan N. Faust, M.D. Jefferson Medical College, 1867; a member of the Medical Society of the State of Pennsylvania; died at his home in Reynoldsville, Pa., Dec. 26, 1914, from cerebral hemorrhage, aged 70.

Isaiah H. Herring (license, Forty-Eighth Judicial District Board, Texas, 1901), formerly a member of the State Medical Association of Texas; died at his home in Fallon, near Mexia, Tex., January 13, aged 44.

Charles Pickney Hanson, M.D. Chattanooga (Tenn.) Medical College, 1905; formerly a member of the Arkansas Medical Society; died at his home in Berea, Ark., January 23, from tuberculosis, aged 33.

John Borough, M.D. Homeopathic Hospital College, Cleveland, 1874; a veteran of the Civil War; for forty years a practitioner of Mishawaka, Ind.; died at his home Dec. 31, 1914, from nephritis, aged 71.

John R. McLaurin, M.D. Louisville Medical College, 1884; a practitioner and druggist of Toomsuba, Miss.; died at his home in that place, January 5, from the effects of poisoning by carbolic acid, aged 56.

Charles Dudley Morrow, M.D. Lincoln (Neb.) Medical College, 1895; a practitioner and druggist of Prosser, Neb.; died in a hospital in Hastings, Neb., January 9, as the result of a nervous breakdown.

George Ernest Millichamp, M.D. University of Toronto, Ont., 1895; formerly chief medical examiner of the Union Life Assurance Company, Toronto, Ont.; died at his home in that city, January 7.

James Graeme Richardson, M.D. Manitoba Medical College, Winnipeg, 1911; of Winnipeg; died in the Winnipeg General Hospital, recently, from septicemia following disease of the ear, aged 28.

Winfield Scott Norcross, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1886; a veteran of the Civil War; died at his home in Auburn, Maine, January 7, aged 70.

Chester Monroe Baker, M.D. Long Island College Hospital, Brooklyn, 1896; a member of the Massachusetts Medical Society; died at his home in Hyannis, Mass., Dec. 12, 1914, aged 39.

Charles W. Patton, M.D. Kansas City (Mo.) Medical College, 1888; a member of the Missouri State Medical Association; died at his home in Mooresville, January 26, aged 62.

John Calvin Craig, M.D. University of Michigan, Ann Arbor, 1873; of Liberty, Ill.; died in Conway, Ark., Dec. 14, 1914, from sarcoma of the jaw, following an operation, aged 66.

Franklin Thomas Moore, M.D. Jefferson Medical College, 1897; a member of the Staff of the Syrian Protestant College, Beirut, Syria; died suddenly in that place, January 15, aged 48.

Charles E. Reese, M.D. Medical College of Ohio, Cincinnati, 1885; local surgeon of the C. and M. V. Railroad; died at his home in Cedar Heights, near Lancaster, Ohio, Nov. 1, 1914.

Samuel T. Baldridge, M.D. State University of Iowa, Iowa City, 1887; a member of the Illinois State Medical Society; died at his home in Chicago, February 2, aged 52.

William G. Schmidt, M.D. Missouri Medical College, St. Louis, 1891; a practitioner and druggist of Quincy, Ill.; died at his home, January 16, from disease of the liver, aged 54.

Joseph Kalisher, M.D. New York University, New York City, 1881; a Fellow of the American Medical Association; died at his home in New York City, January 27, aged 57.

John J. Rigg, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1885; died at his home in Fort Madison, Iowa, January 18, from cerebral hemorrhage, aged 61.

Richard Runyan Rogers, M.D. University of Pennsylvania, Philadelphia, 1862; once surrogate of Mercer County, N. J.; died at his home in Trenton, N. J., January 14, aged 91.

Bradford Patterson, M.D. American Medical College, Cincinnati, 1865; surgeon of volunteers during the Civil War; died at his home in Barrie, Ont., Nov. 8, 1914, aged 94.

David Hume McDonald, M.D. University of Louisville, Ky., 1855; for fifty-six years a practitioner of Quincy, Ind.; died at his home in that place, January 17, aged 83.

Thomas A. Gamble, M.D. American University of Pennsylvania, Philadelphia, 1873; a veteran of the Civil War; died at his home in Troy, Pa., January 17, aged 70.

Henry W. McLaughlin, M.D. College of Physicians and Surgeons, Baltimore, 1885; died at his home in Marietta, Ohio, January 20, from locomotor ataxia, aged 54.

Benjamin Ewell Keys, M.D. University of Nashville, Tenn., 1900; a practitioner and druggist of Fate, Tex.; died at his home, January 5, from pneumonia, aged 50.

Walter Bradley Hill, M.D. Jefferson Medical College, 1864; formerly of St. Louis; died at his home in San Jose, Cal., January 14, from senile debility, aged 72.

Louis Lohman, M.D. University of Giessen, Germany, 1846; a physician and druggist of Kimmswick, Mo.; died at his home in that place, January 8, aged 94.

Thomas Pope Dudley Pound, M.D. Louisville (Ky.) Medical College, 1875; died at his home in Jeffersontown, Ky., January 9, from heart disease, aged 70.

L. G. Bombarger, M.D. Memphis Hospital Medical College, 1901; was found dead in his office, January 15, from accidental gas asphyxiation, aged 46.

Herbert James Pratt, M.D. Harvard Medical School, 1868; a musician and linguist of Plymouth, Mass.; died at his home in that place, January 21, aged 72.

John T. Digges, M.D. Georgetown University, Washington, D. C., 1869; a Confederate veteran; died at his home in La Plata, Md., January 13, aged 73.

Francis Alfred Comfort, M.D. University of Michigan, Ann Arbor, 1866; died at his home in Logan, Neb., January 21, from heart disease, aged 73.

Charles William Brunner, M.D. Long Island College Hospital, Brooklyn, 1891; died at his home in Williamsburg, Brooklyn, January 22, aged 59.

Leonard W. Carpenter, M.D. Homeopathic Hospital College, Cleveland, 1865; died at his home in Trumansburg, N. Y., Nov. 8, 1914, aged 81.

George W. Burleigh, M.D. Indiana Eclectic Medical College, Indianapolis, 1887; died at his home in Los Angeles, Cal., January 19, aged 79.

William Melandston Nead, M.D. Homeopathic Hospital College, Cleveland, 1884; died at his home in Albany, N. Y., Dec. 26, 1914, aged 55.

Scott Fulton, M.D. Columbus (Ohio) Medical College, 1892; died at his home in Columbus, Ohio, January 15, from pneumonia, aged 50.

Robert Davis Reynolds, M.D. University of Alabama, Mobile, 1880; died at his home in Ozark, Ala., January 12, from heart disease.

William Havens, M.D. Michigan Homeopathic Medical College, Lansing, 1871; died at his home in St. Johns, Mich., January 10, aged 84.

Charles H. L. Johnston, M.D. L.R.C.S. Edinburgh, 1865; died at his home in St. John, N. B., January 18, from heart disease, aged 70.

J. E. Cooper, M.D. Louisville Medical College, 1895; died at his home in Golden, Tex., January 19, from cerebral hemorrhage.

William Lewis Lett (license, Oklahoma, 1908), also a druggist; died at his home in Lamar, Okla., January 1, aged 61.

Maxime Landry, M.D. Tulane University, New Orleans, 1893; of New Orleans; died in Mandeville, La., January 14, aged 42.

Frédéric Lefils, M.D. Laval University, Quebec, 1892; died at his home in Montreal, January 8, aged 46.

Joseph S. McKinley, M.D. University of Nashville, Tenn., 1867; died at his home in Cordova, Tenn., January 12.

The Propaganda for Reform

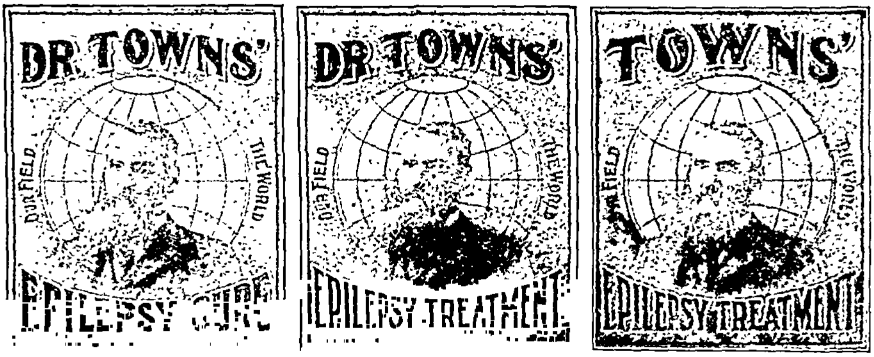
In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

TOWNS' EPILEPSY TREATMENT

Another Fraudulent Bromid Mixture

Towns' Epilepsy Treatment is marketed by the Towns' Remedy Company of Milwaukee, Wis. A few years ago this preparation was known as "Dr. Towns' Epilepsy Cure" and was sold from Fond du Lac, Wis. Then came the Food and Drugs Act, which made false statements on the trade package come high, and as Towns' "patent medicine" is not and never was a "cure" the name of the product was changed to "Towns' Epilepsy Treatment." The Towns concern did not move directly from Fond du Lac to Milwaukee but was for a time located at Baltimore, Md.

The method by which the Towns alleged cure is brought to the attention of prospective victims is typical of the mail-order faker. Leaflets and "follow-up letters" are sent to those who answer the Towns advertisement. In addition to the usual testimonial, common to the "patent medicine" fraternity, Towns sends out "endorsements" of his nostrum from "authorities." One of these endorsements is, according to Towns, "from the highest authorities known." The "highest authority" referred to is Willard H. Morse, M.D., F.S.Sc. (Lond.), etc. Morse's name, as most of The Journal readers know, appears on alleged analytical reports and testimonials for numerous fraudulent preparations: consumption cures, epilepsy cures, rheumatism cures, cures for blindness—these are but a few of the fakes that have in their advertising armamentarium so-called chemists' certificates and "professional endorsements" bearing Morse's name. Another alleged endorsement of Towns' "cure" is an "editorial" entitled "Plain Truth About Proprietary Remedies" from the *American Journal of Health*. This publication was one of those journalistic parasites that batten on quackery. In a government report published a few years ago the federal officials made this statement:



The Towns label in its progress toward comparative truthfulness. *"Dr.* Towns' Epilepsy *Cure"* first became *"Dr.* Towns' Epilepsy *Treatment"* and is now simply "Towns' Epilepsy Treatment."

> "It appears by satisfactory proof . . . that this *American Journal of Health* is not a medical journal of good standing, and that it is simply a fraudulent publication printed to sell paid advertisements to various medical concerns doing a mail-order business, and to be then used by such concerns as an endorsement of a medical publication."

Apparently the Towns concern, in common with most medical mail-order frauds, disposes of its "sucker list" when such lists have no further financial value. At any rate it is a matter of government record that a fraudulent "epilepsy cure" of Cincinnati put out of business by the federal officials some time ago declared that it purchased the names of possible victims from Dr. Towns of Fond du Lac.

A bottle of Towns' "patent medicine" was submitted to the Association laboratory for examination. The chemists report:

CHEMISTS' REPORT[1]

One original bottle of "Towns' Epilepsy Treatment," manufactured by the Towns Remedy Co., Baltimore, Md., was submitted to the chemical laboratory for examination. The bottle contained a brown liquid, having extractive matter present, and with an odor of cinnamon and valerian. The specific gravity of the liquid at 15.6 C. was 1.2505. Qualitative tests demonstrated the presence of the following: Alcohol, ammonia, potassium, sodium, bromid, chlorid, iodid and sugar. Quantitative determinations yielded the following:

Alcohol (by volume)	1.00 per cent.
Ammonia (NH_3) (by weight)	1.82 per cent.
Potassium (K^+) (by weight)	2.98 per cent.
Sodium (Na^+) (by weight)	1.39 per cent.
Bromid (Br^-) (by weight)	12.81 per cent.
Chlorid (Cl^-) (by weight)	3.12 per cent.
Iodid (I^-) (by weight)	0.46 per cent.
Sugar (Sucrose) (by weight)	5.42 per cent.

Calculating from the bromid and iodid determinations, each dose, 1½ teaspoonfuls (1½ fluidrams), approximates the equivalent of 21.3 grains potassium bromid and 0.78 grain (about ¾ grain) potassium iodid. The daily dose (6 teaspoonfuls) corresponds to 85.2 grains potassium bromid and 3.12 grains potassium iodid. Considerable chlorid is also present, equivalent to approximately 6 grains sodium chlorid in 1½ teaspoonfuls, or 24 grains in the daily dose (6 teaspoonfuls).

Evidently this "epilepsy cure," in common with other nostrums of the same kind, depends for its action on the presence of bromids. And Towns has made the claim that he "can cure ninety-six in every hundred cases" of epilepsy! In a card sent out by the Towns Remedy Company the public is led to infer that the nostrum has the endorsement of federal judges. Whether this is true we do not know. It is a matter of court record, however, that the federal authorities prosecuted the Towns concern for making false and misleading claims for the preparation. When brought before the federal judge the Towns concern pleaded guilty and was fined.

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report. Previous instalments of abstracts appeared in The Journal, Nov. 14 and 21, Dec. 12, 1914, Jan. 2 and 30, 1915.

Virol

Virol, sold in the United States by the Etna Chemical Company, is put out by Virol, Ltd., London, England. It is said to be

> "A preparation of bone marrow, red bone marrow of medullary structure of ox rib and calf bones, eggs, malt extract, and lemon syrup made from fresh fruit."
>
> "Marrow fat is emulsified with extract of malt, lemon syrup and eggs, it is further enriched with soluble phosphates of lime, iron and soda, and glycerine solution of red bone marrow."

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[1] This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1914.

Many of the therapeutic claims made for Virol the Council considered grossly exaggerated; among them are the following:

". . . a complete food for children."

". . . a complete nutrient."

"The value of the Lime-Salts (representing the Egg Shells) contained in Virol is fully illustrated in its influence upon Rickets; whilst Struma, Chronic Bronchitis, Anaemia and Influenza are all combated by its use in a degree, which, we venture to say, has never been approached."

"The fat, as represented by the Marrow-bone and Egg Yolk, is so *minutely divided that it* admits of even far more rapid absorption by the *villi* of the intestine than milk."

"It is an ideal form of food, readily digested and assimilated in the weakest of conditions."

"Virol has a marked effect on the metabolism of the body, increasing the production of opsonins and stimulating phagocytosis. As an adjuvant *to the natural defensive processes of the patient in all diseases of bacterial origin* its value can scarcely be over-estimated."

The objections of the Council were transmitted to Virol, Ltd. The firm's reply was reported to the Council by the referee of the Committee on Therapeutics who held that no adequate or satisfactory answer had been made to the objections raised against the advertising claims for Virol.

The claims made for Virol being unsubstantiated and unwarranted, the Council voted that the preparation be refused recognition.

In accordance with the practice of the Council, the exploiters of Virol were afforded an opportunity to comment on the foregoing statement before its publication. On their objecting to the findings, the entire matter was turned over to a second referee. This referee, in making his report, reviewed the claims made for Virol and commented on the lack of evidence to substantiate these claims. He stated that a chemical analysis of the preparation had yielded the following result:

"Sugar, as maltose	60.0 per cent.
Fat	13.2 per cent.
Proteins	3.2 per cent.
Ash	1.6 per cent.
Water and volatile matter	21.6 per cent.

"There is no appreciable diastatic action. A little glycerol is present in the volatile matter. The preparation is therefore an extract of malt with fat and a small amount of protein."

He then continues:

"That Virol has food value cannot be denied, but that it has sufficient value to warrant the claims of the manufacturers is not evident. Virol cannot be considered a complete food, as the advertising literature reiterates, or an ideal food for infants. The amount of protein is far too low in comparison with the carbohydrates to warrant this view. The dosage recommended is not large. Thirty gm. a day would *furnish only* about 1 *gm. of protein* and 4 *gm.* of fat. The 3 teaspoonfuls a day recommended for children would furnish protein and fat even below this.

"If employed alone it cannot be a complete or sufficient food, and if employed along with other articles of diet—milk and bread, for example—it is not easy to see wherein lies the efficacy of the small weights of fat and protein added in the form of Virol. Here the demand made on our credulity is too great, as the protein in the preparation is the familiar protein of eggs, meat and malt, and the fat largely that from the egg-yolk and marrow, according to the claims. It is not known that any specific *virtues reside* in *these bodies,* or in the egg-shells, also claimed as present.

"In the opinion of the present referee there is nothing in the composition of Virol to justify the claims made for it. The judgment and recommendations of the first referee follow from the facts and must be accepted by the Council."

The Council directed that the previously prepared report be allowed to stand and that it be published along with a suitable reference to the report of the second referee.

Salesthyl and Sal-Hyl

Salesthyl and Sal-Hyl, two preparations exploited by the New York Salesthyl Corporation, were submitted to the Council for inclusion in New and Nonofficial Remedies. Salesthyl, a liquid, marketed in capsules, was stated to be the menthyl ester of methyl salicylate. Sal-Hyl was said to be an ointment of Salesthyl, and its exact composition was not disclosed.

The first preparation, Salesthyl, is claimed to have the ordinary therapeutic actions of salicylates in general. The specific advantages appertaining to this product however, according to the manufacturers, make it more efficient; for example, they say it is "free from toxic effects," "a resorbent of uric acid" a "bacterizer" with "never-failing results."

From either a chemical or a pharmacologic standpoint, it is difficult to understand how the menthyl ester of methyl salicylate could be at the same time more efficient and less toxic than methyl salicylate itself. As to the peculiar terms "bacterizer" and "resorbent of uric acid," the meaning of *which must* be *gessed at, the manufacturers have* submitted no evidence that their products possess these hitherto unknown virtues.

The claims as to non-toxicity and greater efficiency were supported in the advertising circular by tabulated reports said to have emanated from "well-known medical practitioners," who for the most part were asserted to be connected with New York hospitals. All of these reports were dated July, 1912. Investigation showed that these reports must have been written within two months after these "well-known practitioners" had graduated from a homeopathic school. This school claims no special experience with salicylates (in fact the use of salicylates in rheumatic conditions is not considered a homeopathic measure). The Council held it misleading to characterize these recent graduates as "well-known practitioners." The reports themselves, however, were insufficient and unconvincing and even contradicted the claimed superiority of Salesthyl.

The Council also objected to the name "Salesthyl" as likely to be confused with the well-established name "sal-ethyl," a salicyl ester described in New and Nonofficial Remedies.

The false claims having been brought to the attention of the present owners—the New York Salesthyl Corporation—*they explain that they obtained the reports among the assets* of their predecessors, the "American Salesthyl Corporation"; that they acted in good faith; that they will withdraw the pamphlets from circulation; and that they desire to make all needed reforms. In view of this the Council voted that Salesthyl and Sal-Hyl be refused recognition with the understanding that further consideration will be given the products when the needed reforms have been made and satisfactory evidence of the value of the products has been submitted.

Analutos and Analutos Tablets

Analutos and Analutos Tablets, 0.5 Gm. were submitted to the Council by a representative of the Royal Pharmaceutical Works of Meppel, Holland.

Analutos was stated to be the calcium salt of acetyl-salicylic acid. The advantages claimed over acetyl-salicylic acid itself are that Analutos is more soluble and less liable to produce gastric disturbance. The evidence submitted was not sufficient to show that Analutos has any advantages over acetyl-salicylic *acid,* or *that it* or its *properties* were discovered by the manufacturers. It is simply an unessential modification of a well-known substance, offered without evidence of superiority or originality. The Council held that physicians should not be burdened with a new, arbitrary name which does not even indicate the relation of the product to its well-known basic constituent. Accordingly it was voted that Analutos and Analutos Tablets be refused recognition.

Budwell's Emulsion of Cod-Liver Oil, Nos. 1 and 2

The Budwell Pharmacal Company, Lynchburg, Virginia, which markets these preparations, claims that "No. 1" contains cod-liver oil, "Iodide of Arsenic," "Iodide of Calcium," and "Iodide of Manganese." "No. 2" is said to contain in addition to the *ingredients* of *No. 1* creosote carbonate *and* guaiacol.

It is known that arsenous iodid is decomposed by contact with water. It is recognized that creosote carbonate is unstable and prone to liberate creosote. Iodide of manganese not being official, the supply on the market is not controlled in any way: tests of purity are not prescribed by the Pharmacopeia, the National Formulary, New and Nonofficial Remedies or other books of standards. Therefore doubt must be expressed as to the accuracy of the formulas as given. The

Council cannot accept such statements of composition without further evidence.

"No. 1" is commended for use in

"Chronic Rheumatism, Glandular Swellings, *later forms of Syphilis*, convalescence from Scarlet Fever, La Grippe and Malaria, Chronic Malarial Infection, Marasmus, Joint or other suppuration of standing, diseases of skin, chorea, anaemia, neurasthenia, obstinate neuralgia, scrofulous affections in general, and diarrhoea or dysentery (sub-acute or chronic) in childhood"

"No. 2" is said to be

"Prepared especially for the treatment of Chronic Throat, Nasal, Bronchial and Pulmonary Diseases."

In the advertising circular statements regarding the various ingredients of Budwell's Emulsion are quoted from obsolete text-books. These statements, for the most part, do not represent modern opinions on the subject. For instance, the circular praises the action of guaiacol as eliminated directly by the lungs, thus exerting a beneficial local effect and causing bacilli to diminish in numbers or to disappear. All of this is directly contradicted in authoritative modern publications on pharmacology, which hold that the excretion of guaiacol by the lungs is infinitesimal and its action on bacilli is nil. The Council held the preparations in conflict with its rules as follows:

1. Many of the therapeutic claims are exaggerations.
2. The method of exploitation amounts to an indirect invitation to the public to use these preparations as "consumption cures."
3. The preparations are unscientific, they constitute a reprehensible invitation to uncritical prescribing and their use is inimical to the best interests of the profession and the public. It is difficult to imagine in what conditions such a combination would be indicated. These preparations are a remnant of the days of polypharmacy. Their use is not in keeping with present medical thought and practice.

Citarin

Citarin, a product of the Farbenfabriken vorm. Friedr. Bayer and Co. (The Bayer Company, Inc., New York) admitted to N. N. R. in 1906, is discussed in New and Nonofficial Remedies, 1914, as follows: "This is one of the compounds which it is claimed increase the elimination of uric acid by forming very soluble compounds with that substance. Citarin is claimed to be useful for gout and chronic rheumatism." The referee of the Council in charge of formaldehyd derivatives reported that Citarin is recommended chiefly, if not solely, for increasing the solubility of uric acid in gouty conditions, this supposed effect being referred to the liberation of formaldehyd as Citarin is the sodium salt of an acid obtained by acting on citric acid with paraformaldehyd. The view that the solubility of uric acid could be increased by any such measures in the body has now been generally abandoned. For this reason the Council held that experience has failed to demonstrate the value of Citarin and directed its omission from the next edition of New and Nonofficial Remedies as a useless and unscientific product (Rule 10).

Past and Present in Biologic Investigation.—The sum and substance of biological inquiry may be embodied in two questions: What is the living organism, and how has it come to be? We often find it convenient to lay the emphasis on one or the other of these questions, but fundamentally they are inseparable. The existing animal bears the indelible impress of its past; the extinct animal can be comprehended only in the light of the present. For instance, the paleontologist is most directly concerned with problems of the past, but at every step he is confronted by phenomena only to be comprehended through the study of organisms as they now are. Our main causal analysis of evolution must be carried out by experimental studies on existing forms. All this seems self-evident, yet the singular fact is that only in more recent years have students of evolution taken its truth fully to heart. —Edmund B. Wilson, *Science*.

Correspondence

The Smegma Bacillus

To the Editor:—Your recent editorial (Jan. 23, 1915, p. 348) on the smegma bacillus does not cover all the facts. I have several times obtained from specimens of urine drawn by the catheter an acid-fast bacillus closely resembling the tubercle bacillus. On at least one occasion I have obtained the same bacillus from a hydronephrotic kidney that was certainly not tuberculous (*Am. Jour. Med. Sc.*, 1915, cxlix, 30).

Perhaps the precaution of previous urethral irrigation, as suggested by Young and Churchman, might have eliminated the acid-fast bacilli found in the bladder urine; but it could not have had the same effect on a specimen obtained by ureter catheter. That these were smegma bacilli I cannot assert. The important point is that they closely resembled the tubercle bacillus. The absence of tuberculosis was demonstrated by operation in the hydronephrotic case mentioned above, and in two cases in which the bacilli were *obtained by catheter from the bladder.* One was a gonorrheal pyelitis, the other a gonorrheal prostate.

In my hands the following method has proved a safe one for differentiation of these bacilli from real tubercle bacilli. The essential element is the prolonged immersion in alcohol, which appears to eliminate many bacteria that are acid- and alcohol-fast when stained briefly.

Gabbett's Method: After fixing, the smear is flooded with Ziehl's carbolfuchsin and heated to moderate steaming for six minutes. The slide is then washed in running water until no more carbolfuchsin comes away. *Without drying, the slide is then flooded with Gabbett's* methylene-blue solution for thirty seconds and again washed in water. If any acid-fast bacilli are found, the slide should be immersed in 95 per cent. alcohol for twenty-four hours and again examined. If the bacilli have retained their staining they are tubercle bacilli.

EDWARD L. KEYES, JR., M.D., New York.

Transplantation of the Anterior Temporal Artery

To the Editor:—My attention has just been called to the fact that Dr. George H. Monks of Boston has transplanted the anterior temporal artery with the flap attached to repair a defect made by excision of the lower eyelid for carcinoma. The description of his operation was published in the *Boston Medical and Surgical Journal*, Oct. 20, 1898. While there is considerable difference in some of the details of the operation, the principle is identical with that mentioned in my article on "Transplantation of the Anterior Temporal Artery" (THE JOURNAL, Jan. 30, 1915, p. 408). Of course, Dr. Monks is entitled to priority. I did not know of Dr. Monks' work when my paper was written.

J. SHELTON HORSLEY, M.D., Richmond, Va.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INQUIRIES ABOUT THE HARRISON LAW

To the Editor:—In the issue of February 6 (THE JOURNAL, p. 518), in your editorial comments on the Harrison bill, and again in answering F. R. F., in this last issue (THE JOURNAL, Feb. 13, 1915, p. 611), you have asserted that physicians must keep a record of narcotic drugs dispensed. I have this day received from the collector of internal revenues for this district my registration blank and a copy of this law. Paragraph (a) of Sec. 2. says we must keep a record of these drugs, "except such as may be dispensed or distributed to a patient upon whom such physician, dentist or veterinary surgeon shall personally attend."

Art. 10. of the regulations says among other things, "A record, however, is required to be kept of all such drugs so dispensed or distributed (except such as may be dispensed or distributed to a patient, upon whom such physician, dentist or veterinary surgeon shall personally attend, i. e., personally visit)."

I might add that a local attorney advises me that no record would be required, according to the law, unless some one came into our office and made an explicit demand for one of these narcotics.

In view of these exceptions, just how much of a record is a dispensing physician supposed to keep?

C. C. Probert, M.D., West Branch, Mich.

Answer.—The statements in The Journal, referred to by our correspondent, were general provisions and were not intended to include the specific exemptions in the bill, which provide that drugs dispensed or distributed to a patient, on whom a physician shall personally attend, do not need to be recorded.

Article 10 of the regulations reads: "Under the exempting provisions of Section 2 of the act, no written order is required for the 'dispensing or distribution of any of the aforesaid drugs to a patient by a physician, dentist, or veterinary surgeon, registered under this act, in the course of his professional practice only.' A record, however, is required to be kept of all such drugs so dispensed or distributed (except such as may be dispensed or distributed to a patient, upon whom such physician, dentist, or veterinary surgeon shall personally attend . . . i. e., personally visit) and must show:

"1. The date when any such drug is dispensed or distributed;

"2. The kind and quantity dispensed or distributed in each case; and

"3. The name and residence of the patient to whom such drug was dispensed or distributed. . . .

"The record so kept must be preserved for a period of two years from the date of dispensing or distributing, and will be subject to inspection as provided in Section 5 of the act. Each physician, dentist and veterinary surgeon must supply himself with a suitable blank book for such record."

To the Editor:—I notice in last week's Journal your two comments on the new narcotic law. There is one point that you do not mention that should be made clear. If I understand the language of the law and the regulations, it exempts keeping a record of morphin and cocain and its preparations where it is dispensed directly to the patient. See Internal Revenue Regulation No. 35, page 5, line 4, and page 13, Article 10, line 6.

As I understand the language, if a physician sends the narcotic by the hand of another party, he has to keep a record. If he personally attends the patient a record is not necessary.

Is this your understanding? If not I should like to get it clear.

M. T. Clark, M.D., Temple, Okla.

Answer.—See the preceding answer. The regulations except drugs dispensed or distributed to a patient on whom the physician shall personally attend, that is, personally visit. Whether this applies only to drugs dispensed at the actual time of such a visit or to patients on whom the physician is at the time personally attending, would seem to be a matter for further interpretation.

To the Editor:—In re the Harrison bill, which goes into effect March 1, 1915, are there any provisions for border line towns? I am practicing on the state line between New York and Vermont. Do I have to make application to the deputy commissioner of internal revenue in New York as well as in Vermont for a registry number, and also to report to him?

E. F. Crofutt, M.D., Poultney, Vt.

Answer.—The law provides that every person affected shall register with the collector of internal revenue of the district, and that the office, or if none, then the residence of any person, shall be considered his place of business. No provision appears to be made regarding border line towns; nor would it seem to be necessary for any individual to register in more than one district. Article 1, paragraph 2 of the regulations reads, "If the applicant (other than a physician, dentist or veterinarian) has more than one place of business . . . a separate application for registry must be made." This would seem to imply that physicians were only required to register in a single district.

To the Editor:—Please send me the names of drugs which a doctor is barred from lawfully using, in case he does not pay the $1 revenue tax by March 1. C. S. Whitehead, M.D., Xenia, Ohio.

Answer.—"Opium or coca leaves or any compound, manufacture, salt, derivative, or preparation thereof."

LANDAU COLOR TEST FOR SYPHILIS

To the Editor:—In reference to the Landau color test for serodiagnosis of syphilis noted in The Journal, Oct. 10, 1914, p. 1317, the directions call for a 1 per cent. solution of iodin in methanetetrachlorid. What is the strength of the latter?

A. Judson Benedict, M.D., Newburgh, N. Y.

Answer.—Landau's original communication on this test was published in the *Wiener klinische Wochenschrift*, 1913, xxvi, 1702, under the title "Untersuchungen über eine Reaktion luetischer Sera mit einem Jodöl-Reagens." In this preliminary paper Landau described his test as follows, using as a reagent paraffin oil, to which was added tincture of iodin in the proportion of 5 drops of the tincture to 10 c.c. of the oil: To 0.2 c.c. of clear serum are added 2.5 c.c. of the reagent, and the mixture thoroughly shaken. The tubes are set aside in a dark place for from five to fifteen hours, when positive reactions will be shown in the perfectly clear decolorized mixture, while the negative reactions are indicated by a persistent yellowish-red coloration.

In his later work, we are informed, he uses a reagent containing more iodin, but employs less of the reagent, so that the end result is the addition of less iodin to the serum than in his first tests. His technic, as published in The Journal, as given above, is as follows: To 0.2 c.c. of the clear serum, add 0.01 c.c. of the reagent, consisting of a 1 per cent. solution of iodin in a solution of methanetetrachlorid of full strength (the latter is commonly known as carbon tetrachlorid, and is a colorless liquid somewhat resembling chloroform). Shake the mixture thoroughly until the iodin coloration has disappeared. Set aside for four or five hours at room temperature and examine. Positive reactions are indicated by a clear transparent yellow, while negative results are shown by an opaque whitish-gray mixture. These differences are not clearly distinguishable in all cases, so that one may test the mixtures for unbound iodin by the addition of a few drops of starch paste. As is well known, the presence of iodin is indicated by a blue coloration in the reaction with starch, so that negative tests will be shown by a blue color and positive tests by no change of color on the addition of the starch. This refinement is frequently necessary, as the variations in coloration and appearance of the serum are not always marked.

In using this test, as outlined above, experience has shown that only fresh serums are reliable, as has also been shown by Landau. The most reliable results are shown with serums not over ten hours old. The results with the test, fresh serums being used, parallel the Wassermann tests quite closely. This test would seem worthy of study, especially as a confirmatory test along with the Wassermann. It cannot, however, be relied on when used with serums sent to the laboratory from a distance.

PHENOL IN TETANUS

To the Editor:—In The Journal, Jan. 16, 1915, p. 278, you give an abstract of an article on "Phenol in Tetanus." I should like to ask if sixteen of the twenty-two patients did not die of phenol poisoning when they were receiving subcutaneously from 12 to 15 grains of phenol twice a day. Unless the patients suffering from tetanus by some unknown way can tolerate such doses of phenol without getting poisoned by it, it would seem pretty risky to try in every case of tetanus such heroic measures as described in this abstract. Likewise the dose of the chloral is enormous. I would appreciate your opinion in regard to the dosage of the phenol as given in the abstract. Is it safe or not to administer such a dose in tetanus?

K. H. Mallarian, M.D., Fargo, N. Dak.

Answer.—The doses of phenol given by Sainton in the article referred to do not approximate the fatal dose, which is as a minimum 15 gm. (½ ounce). It should be remembered that tetanus is an extremely fatal disease, and all forms of treatment employ heroic doses of the remedies used. The doses given by Sainton are about 50 per cent. above those recommended by Baccelli. Baccelli thinks that patients with tetanus are extremely tolerant to phenol.

The dose of chloral is considerably above doses which have proved fatal in exceptional cases, but the chloral in tetanus is probably largely counteracted by the convulsive condition of the patient. While the minimum fatal dose of chloral has been put at from 1.5 to 2 gm. (20 to 30 grains), much larger doses have been used in tetanus without serious results. In a case of tetanus, 93 gm. or 3 ounces were given in twenty-four hours without causing death. Anders recommends chloral to be given by rectal injections, 2.59 gm. or 40 grains, at a dose.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Connecticut: New Haven, March 8-9. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven. Homeopathic: New Haven, March 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Eclectic: New Haven, March 9. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Florida: Homeopathic: Jacksonville, March 5, Sec., Dr. C. W. Johnson, 33 E. Monroe St., Jacksonville.

Maine: Portland, March 9-10. Sec., Dr. F. W. Searle, 776 Congress Street.

Massachusetts: Boston, March 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Missouri: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Rhode Island: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

Illinois October Report

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, Oct. 6-8, 1914. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 118; of whom 103 passed and 9 failed. Six candidates did not complete the examination. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Licensed
Bennett Medical College	(1912,1) (1913,5) (1914,17)	23
Chicago College of Medicine and Surgery	(1909,1) (1910,1) (1911,2) (1912,1) (1913,3) (1914,28)	36.
Hahnemann Medical College and Hospital, Chicago	(1912,1) (1913,1) (1914,1)	3.
Hering Medical College	(1913)	1
Jenner Medical College	(1914)	3
Northwestern University	(1914)	6
Reliance Medical College	(1911)	1
Rush Medical College	(1912,1) (1913,1) (1914,5)	7
University of Illinois	(1913,1) (1914,10)	11
Louisville and Hospital Medical College	(1908)	1
American Medical College, St. Louis	(1912) (1914)	2
Barnes Medical College	(1899)	1
University and Bellevue Hospital Medical College	(1914)	1
University of Pennsylvania	(1914)	1
Woman's Medical College of Pennsylvania	(1906)	1
Meharry Medical College	(1914)	3
Western University, London, Ont.	(1909)	1
National University of Athens	(1909)	1

FAILED

College	Year Grad.	Total No.
Bennett Medical College	(1914)	1
Chicago College of Medicine and Surgery	(1914)	1
College of Physicians and Surgeons, Chicago	(1901)	1
College of Med. and Surg., Physio-Medical, Chicago	(1909)	1
Jenner Medical College	(1914)	1
Illinois Medical College	(1910)	1
Detroit College of Medicine	(1910)	1
Royal University of Palermo	(1911)	1
University of Zurich, Switzerland	(1911)	1

Mississippi October Report

Dr. E. H. Galloway, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, Oct. 27-28, 1914. The total number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 24, of whom 18 passed, including 1 osteopath, and 6 failed. One candidate was licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Alabama	(1914)	86
Atlanta College of Physicians and Surgeons	(1913)	86
Atlanta Medical College	(1914)	77, 88
Tulane University of Louisiana	(1913) 86; (1914)	83
Jefferson Medical College	(1913)	85
Memphis Hospital Medical College	(1906) 75; (1913)	75, 75, 75, 79
University of Tennessee	(1914)	77, 77, 79
Vanderbilt University	(1914)	76
University of Virginia	(1914)	83

FAILED

College	Year Grad.	Per Cent.
Collee of Physicians and Surgeons, Little Rock	(1911)	67
Chicago College of Medicine and Surgery	(1914)	69
Mississippi Medical College	(1911)	33
Memphis Hospital Medical College	(1907)	66
University of Tennessee	(1914)	72
Vanderbilt University	(1914)	67

One candidate, a graduate of the University of Virginia, 1905, was granted a license through reciprocity with Virginia.

New Jersey October Report

Dr. Horace G. Norton, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, Oct. 20-21, 1914. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 33, of whom 22 passed, including two osteopaths, and 11 failed. Thirty candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgetown University	(1913)	75.5
Howard University	(1914)	79
Johns Hopkins University	(1912)	82.7
University of Michigan, Homeo. Medical College	(1914)	81.5
Albany Medical College	(1914)	75.8
New York Homeo. Med. Coll. and Flower Hosp.	(1913) 78.8 (1914)	80, 81.
University and Bellevue Hosp. Med. Coll.	(1913) 80, 81; (1914)	81, 82.3, 82.5, 83.3.
Jefferson Medical College	(1912) 75.1; (1914)	75, 79.3, 80.
Woman's Medical College of Pennsylvania	(1914)	78.3
University of Virginia	(1911)	78.4

FAILED

College	Year Grad.	Per Cent.
Georgetown University	(1908)	68.2
Howard University	(1907)	71.8
College of Phys. and Surgs., Baltimore	(1890) 71; (1911)	69.8
Fordham University	(1913)	71.6
University of the City of New York	(1891)	70
New York Homeo. Med. Coll. and Flower Hosp.	(1913)	70
Jefferson Medical College	(1914)	72.5
Royal University of Berlin	(1901)	52.5
Royal University of Naples, Italy	(1893) 57.4; (1895)	65.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Medical School of Maine	(1914)	Maine
Baltimore Medical College	(1898)	Vermont
Baltimore University	(1900)	New York
Boston University	(1910)	New Hamp.
Tufts College Medical School	(1905)	Maine
College of Phys. and Surgs. in the City of N. Y.	(1894) (1904) (1905)	New York.
Columbia University	(1913,2)	New York
Cornell University	(1911,3)	New York
Eclectic Medical College of the City of New York	(1893) (1912)	New York.
New York Homeo. Med. Coll. and Flower Hosp.	(1906)	New York
Univ. and Bellevue Hosp. Med. Coll.	(1912) (1913) (1914)	New York
Hahnemann Med. Coll. and Hosp., Philadelphia	(1913,3)	Penna.
Jefferson Medical College	(1910) (1912)	Penna.
Medico-Chirurgical College of Philadelphia	(1914)	Delaware
University of Pennsylvania	(1895) (1912)	Penna.
University of Vermont	(1910) (1912)	Vermont
Medical College of Virginia	(1894)	Virginia

Oklahoma October Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Muskogee, Oct. 6-8, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 14, of whom 6 passed and 8 failed, including 1 osteopath. Sixteen candidates, including 1 osteopath, were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1914)	82
Chicago College of Medicine and Surgery	(1914)	78
Rush Medical College	(1904)	85
Maryland Medical College	(1912)	72
Jefferson Medical College	(1913)	83
Meharry Medical College	(1914)	79

FAILED

College	Year Grad.	Per Cent.
University of Arkansas	(1912) 67; (1914)	63
Leonard Medical School	(1913)	63

Meharry Medical College	(1914)	59, 69*
University of West Tennessee	(1909)	*

* No grade given.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1910)	Arkansas
Atlanta College of Physicians and Surgeons	(1913)	Georgia
Georgia College of Eclectic Medicine and Surgery	(1913)	Georgia
University of Georgia	(1904)	Georgia
Chicago Coll. of Med. and Surg. (1913) Arkansas;	*(1914)*	Texas
Kentucky University	(1906)	Kentucky
University of Louisville	(1892) Indiana; (1909) New Mexico; (1911)	Tennessee.
Tulane University of Louisiana	(1901)	Texas
Maryland Medical College	(1904)	W. Virginia
Eclectic Medical College, Cincinnati	(1875)	Michigan
Memphis Hospital Medical College	(1907)	Texas
Tennessee Medical College	(1908)	Tennessee

Connecticut November Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the oral, practical and written examination held at New Haven, Nov. 10-11, 1914. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 17, of whom 11 passed and 6 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Baltimore	(1912)	80
Maryland Medical College	(1912)	79.4
University of Maryland	(1914)	89.2
Tufts College Medical School	(1912)	75.2
University of Michigan, Dept. of Med. and Surg.	(1910)	78.1, 82.8
Columbia University	(1913)	77.6
Cornell University	(1913)	75.5
University College of Medicine, Richmond	(1905)	79.2
Royal University of Catania, Italy	(1912)	76.5
University of Zurich	(1908)	75.8
FAILED		
Kentucky School of Medicine	*(1906)*	55.5
Maryland Medical College	(1913)	61.8, 68.2
College of Physicians and Surgeons, Boston	(1908)	68
Fordham University	(1909)	57.1
University of the South	(1902)	61.2

Nevada November Report

Dr. Simeon L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 2-4, 1914. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Phys. and Surgs., San Francisco	(1911)	82.1
College of Phys. and Surgs., Boston	(1906)	71.6*
Ensworth Medical College	(1905)	79.3
University of Bern, Switzerland	(1886)	82.6

* Credit allowed for years of practice.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Denver and Gross College of Medicine	(1904)	Colorado
Chicago College of Med. and Surg.	(1913)	Illinois
Rush Medical College	(1912)	Illinois
Detroit College of Medicine	(1913)	Michigan
Barnes Medical College	(1907)	Illinois
John A. Creighton Medical College	(1908)	Nebraska

Maryland Homeopathic December Report

Dr. O. N. Duvall, secretary of the Maryland Homeopathic Board of Medical Examiners, reports the written examination held at Baltimore, Dec. 14-15, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. One candidate, a graduate of Hahnemann Medical College and Hospital, Philadelphia, 1914, was examined and passed with a grade of 82.

Book Notices

Digest of Comments on the Pharmacopeia of the United States of America (Eighth Decennial Revision) and on the National Formulary (Third Revision) for the Year Ending Dec. 31, 1913. By Murray Galt Motter and Martin I. Wilbert. Paper. Pp. 518. Hygienic Laboratory Bulletin No. 98. Washington: Government Printing Office, 1914.

This, the ninth in the present series of digests, reflects a growing interest on the part of medical practitioners in official standards for drugs and preparations. The quotations and the references to medical journals appear to be more numerous than in previous numbers of the same series, and under the several headings "Biologic Products," "Enzymes," "Organo-Therapy," "Serums and Vaccines," "Biologic Methods and Tests," "Disinfectants" and "Clinical Tests," the active medical practitioner will find numerous and comprehensive references to literature on subjects of direct interest to him in his everyday work. Under the heading "A Limited Materia Medica" will be found a number of references which reflect the growing sentiment in favor of a thorough knowledge of the possibilities and limitations of a few drugs rather than a smattering of information on a great number of complex preparations regarding which no really authoritative data are to be had. Several pages are devoted to the enumeration of references concerning forms of administration and methods of administration, and in connection with a review on the general subject of alkaloids there will be found a table showing the influence of heat on solutions of alkaloids and their derivatives. The greater portion of the bulletin (366 pages) is devoted to a detailed review of the literature relating to the officially recognized drugs and preparations. Physiologic and therapeutic action and uses, toxic properties and the by-effects of drugs are referred to at length. The results of analyses in published reports of state food and drug officials, or officials entrusted with the enforcement of state food and drug laws, indicate that general conditions in the drug trade are as yet far from satisfactory, many of the more widely used drugs and preparations are frequently found to be of inferior quality, and the resolution adopted by the American Medical Association at its meeting in Minneapolis in 1913, urging on federal and state officials the need for more energetic and effective action in their efforts to eliminate drugs and preparations that are unreliable through carelessness, negligence, ignorance or other reasons, might well be again brought to the attention of federal and state officials for their consideration. Altogether it may be said that the bulletin reflects a fairly complete and comprehensive index of the literature relating to the origin, composition and uses of drugs and medicines, and is a contribution of value to efforts designed to bring about a broader and more comprehensive knowledge of the materials used as medicine. The volume should prove an incentive to the critical study of the possibilities and limitations of the available materia medica with the view of eliminating from the armamentarium of the physician all articles regarding the use or usefulness of which he may reasonably be in doubt.

The Science and Practice of Dental Surgery. Edited by Norman G. Bennett, M.A., M.B., B.C., Dental Surgeon to St. George's Hospital, with an Appendix on Dental Jurisprudence by P. B. Henderson, B.A. Cloth. Price, $9 net. Pp. 797, with 993 illustrations. New York: William Wood & Co., 1914.

This work is one of the most important English contributions to the literature of dentistry. It was evidently planned as a collaboration which should embrace the entire field of dentistry by English writers of note, who would present the most reliable views on the various subjects. Most of the contributors seem to have made extensive and impartial search for the more important facts developed by writers and investigators in the dental field. The editor, Mr. Bennett, has probably succeeded as well as any man could in his attempt to "impart unity of conception and style" to the writings of thirty-three other contributors. The one advantage in a compilation of this kind is that it represents the views of many men, often the opposing views of several men on the same subject. There is the objection, however, that in attempting to cover so large a field, general statements must too often stand without sufficient reports of investigation and induction. While this work presents in a single volume, in concise form, the more important facts, its greatest value would appear to be in the considerable number of well-selected bibliographic references which are appended to almost every chapter. References to these are given by number in the text, and this arrangement can hardly fail to lead the reader into a more extended study through the references. Only those writings which are referred to in the text are listed. In this feature, this work excels all other similar publications. The dental profession of America has cause to feel proud of the numerous references to American writings. It is also pleasant to note the general spirit of fairness in giving credit to men whose views are not in agreement. There are frequent references to German and French authors, showing the wide search which has been made in the preparation of the text. Like most books of this type, this work is not very well balanced, either in the space devoted to various subjects or in the relative prominence given them. More than one-fourth of the book, 209 pages, is concerned with the abnormalities of position of the teeth, while the etiology and pathology of dental caries has twenty-two pages, the diseases of the peridental membrane twenty-six pages, diseases of the dental pulp and alveolar abscess thirty-nine pages. Dental caries and the diseases of the peridental membrane, conditions which are most widespread and are causing the greatest destruction in the number of teeth lost, seem to be entitled to more extended consideration. In the elaborate discussion of irregularities we see the tendency of the specialist to make his field the hub instead of one of the spokes in the wheel. The illustrations have been collected from many sources, and most of them have been well chosen and faithfully reproduced.

The Diagnostics and Treatment of Tropical Diseases. By E. R. Stitt, A.B., Ph.G., M.D., Medical Director, U. S. Navy. Cloth. Price, $2 net. Pp. 421, with 86 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This book was at first intended as a laboratory guide; but, inasmuch as purely laboratory diagnosis of tropical diseases is impracticable, it has been extended into a reasonably complete, although concise, treatment of the infections usually included under the head of tropical diseases. The first part of the book is devoted to a clinical description of these diseases. The second is a laboratory guide for the examinations of the different morbid products from which the diagnosis must be made. The examinations are restricted mainly to those methods which are likely to be used in the examination of tropical patients. Altogether, the work appears to be concise without any loss of reliability. The illustrations are fairly numerous, and have been chosen evidently for their value as illustrating the subject. The book ought to be found useful not only by the student, but also by the practitioner. It must be remembered that in view of the wide latitude over which our country extends, and of its foreign possessions and the frequent migrations, no medical man is free from the liability of meeting a case of disease usually regarded as peculiar to the tropics.

A System of Operative Surgery. By Various Authors. Edited by F. F. Burghard, M.S., F.R.C.S., Lecturer on Surgery, King's College Hospital. Second edition. Five volumes. Cloth. Price, $30. New York: Oxford University Press, 1914.

Numerous advances made in surgery during recent years have necessitated a new rewritten and revised edition of this well-known British surgical work. Each of the five volumes takes up several fields of surgery, the various sections being written by different authors. On the whole, the system probably represents adequately modern English surgical opinion. As a general criticism might be stated the fact that in some portions the material is merely outline—a skeleton of the procedures. Each operative procedure is taken up under three headings: indications, operation and after-treatment, and in some places special difficulties and end-results are also considered separately. The work of American surgeons, as it has been published in American text-books and surgical periodicals, is frequently quoted. In Volume I are included general principles and technic, local analgesia, amputations, blood-vessel, nerve, muscle and tendon surgery, and the non-tuberculous affections of bones and joints. Volume II considers the tuberculous affections of bones and joints, harelip, cleft palate, cancer of the face and lips, surgery of the jaws, esophagus, tongue and stomach, and includes a good article on hernia. There is a conspicuous absence of the padding so often found in composite works. Volume III takes up the operations on the ductless glands, bile passages, and pancreas of the central nervous system, genito-urinary organs, and the thorax and its contents. In Volume IV the intricate operations of the ear and sinuses are elaborately portrayed, and in Volume V gynecologic operations are considered in a manner probably not better given elsewhere. The authorities who have combined to make this exceedingly valuable work include such men as Legg, Stiles, Moynihan, Mayo-Robson, Godlee, Bland-Sutton, Jellett and others. The work is beautifully illustrated throughout, and the editing of Burghard has made this set a finished and admirable work.

The Pocket Formulary for the Treatment of Disease in Children. By Ludwig Freyberger, J.P., M.D., M.R.C.P. Fourth edition, with an Appendix on Poisons, Their Symptoms and Treatment. Leather. Price, $2. Pp. 260. New York: Rebman Company, 1914.

We are told that this formulary has been out of print for some time, although this is the fourth edition, revised and enlarged. The question is at once raised in one's mind whether the continuance of such formularies is desirable. It is to be hoped that the day of complicated formulas containing five active ingredients is practically past. On the other hand, a knowledge of how to employ simple remedies ought surely to be one of the conditions for the license to practice medicine. If we remove these two features, the book is reduced to a list of remedies with their properties, dosage, etc., which would occupy considerably less space, and would be helpful in emergencies to the average practitioner. Some features of the book are very commendable. The drugs with which the author has had personal experience in the treatment of diseases of children are spoken of "as very useful" or "as useful" in the paragraph devoted to therapeutics; those as to the usefulness of which he had to rely on the experience of other physicians, the author has said are "recommended" for the treatment of certain diseases. This distinction between personal experience and hearsay evidence might be profitably made by other teachers on therapeutics. The appendix contains a number of useful features, such as preparations suitable for baths, gargles, hypodermic injections, inhalations, sprays, etc. Von Pirquet's and other cutaneous tests for tuberculosis are described, as well as an outline of tuberculin treatment. Unusual with an English book, it contains no proprietaries.

Meatless Cookery. With Special Reference to Diet for Heart Disease, Blood-Pressure and Auto-Intoxication. Compiled by Maria McIlvaine Gillmore. Introduction by Louis Faugeres Bishop, M.D., Clinical Professor of Heart and Circulatory Diseases, Fordham University. Cloth. Price, $2 net. Pp. 352. New York: E. P. Dutton & Co., 1914.

This book contains a complete series of attractive menus and recipes selected apparently with reference to their uses in cases of heart disease, blood pressure and "auto-intoxication." It is these diseases, the author believes, in which rich foods are especially offensive, and she places foods among the main causes of the neuroses and various intoxications consequent on the present day mode of living. The book not only is the outcome of her own experience in hospital cooking, but also contains the suggestions of patients and various experts consulted. The recipes are wholesome, nutritious, and not of the delicate type or fancy order usually found in meatless cook books. A few recipes for the use of chicken and egg are added in case heavier diets may be required.

Medicolegal

Effect of Contracts with Physicians to Furnish Medicines and Attend the Poor

(Johnson vs. Hamilton County (Ia.), 149 N. W. R. 639)

The Supreme Court of Iowa affirms a judgment in favor of the county, which was sued for $111.10 for medicines and medical supplies furnished an indigent person on the verbal order of the trustees. The court holds that the fact that physicians were employed to furnish medical attendance, medicines, etc., for the poor during the entire time of this account was, under the statutes and prior decisions, decisive of the question, and that the trustees could not ignore such employment. It has been held that the liability of the defendant must be fixed by the statute, or it does not exist, and that, when the board of supervisors have employed physicians to render medical aid and furnish medicines for the poor of the county, the trustees cannot disregard such employment by the employment of some other persons to furnish such medicines, and thereby render the county liable. It was conceded on the trial that these physicians did not give a bond, as required by the statute, and it was claimed by the plaintiff that there was no evidence that the contracts were let under competitive bidding to the lowest bidder. However, it has been recently held that, notwithstanding such fact, the contracts are not invalid, but are binding and in force. The bond required is to secure the faithful performance of the contract. The court thinks this bond is for the purpose of protecting the county in the event of failure of the contracting physician to perform the contract, and is not to protect the person furnishing medicines. It was said that one of the physicians was insolvent and unable to furnish the medicine. But the evidence did not show that any demand was ever made on him to furnish such medicines. The plaintiff furnished the medicines and supplies on the order of the trustees, when, at the same time, the county had a contract with physicians to furnish them. The trustees might not ignore the contract. Without now deciding the point, the court may say there might be a case of emergency, where the county physician is not accessible, when the trustees might employ a physician. To do so would open the door to abuses.

Proof of Mental Feelings Just Prior to Accident—Popularity of Physician

(Sanders vs. Boston & Maine Railroad (N. H.), 92 Atl. R. 546)

The Supreme Court of New Hampshire affirms a judgment for $15,000 damages in favor of the plaintiff, a physician, who was injured by a collision of one of the defendant's trains with a carriage in which he was riding. The court says that the plaintiff was asked on direct examination what his feelings were when he saw the train about to smash into his carriage. He answered: "My first thought was—when I saw I could not escape in spite of my efforts, the horrible thought flashed into my mind, 'My wife and daughter!' just the instant before I went unconscious, and after I tried my best to escape and found it impossible." It could not be said that the plaintiff's method of describing his mental suffering was improper, nor that the testimony was incompetent in substance. If the negligence of the defendant caused the plaintiff mental suffering preceding the injury, he was entitled to compensation therefor. It was therefore competent for the plaintiff to describe his mental feeling just as the accident took place, and the words he used to do so indicated that he thought he would be separated from his wife and daughter in an instant by death, to him a horrible thought, giving him great anguish of mind. The testimony described the special mental suffering that the plaintiff experienced at the time of the collision and was competent. The cases cited by the defendant, in which evidence of mental suffering was excluded, were mostly those where plaintiffs experienced such suffering after the injury, in contemplating their own condition, or the difficult position in which their families were placed, and were not like the case at bar. Nor was counsel's statement to the jury that the plaintiff was a popular man improper. Any argument, warranted by the evidence, that bears on the question of damages, is legitimate. The plaintiff's popularity as a man affected his earning capacity, and was therefore material. It was intimated by the defendant that it would have been legitimate to have argued that the plaintiff was a popular physician, if there had been evidence of it. Unquestionably that would have been so, and a stronger argument; but it does not follow that it was not also competent to state that the plaintiff was a popular man. Such a man has many friends, and, if engaged in a profession, attracts business. Popularity is one of the elements of success. It is a matter of common knowledge that many professional men of very mediocre ability and attainments do a large and lucrative business by reason of their popularity; and there is no doubt that much of their business comes to them, not by virtue of the professional standing, but because they are popular men in the community. The defendant cited many cases to show that character evidence is not admissible on the question of damages. This is true, except in cases where character is directly in issue. But here the court is not considering evidence and argument bearing on the character of the plaintiff, whether he was a normal man, but concerning a distinguishing trait or characteristic of the man, affecting his earning capacity.

Law Governing Conspiring of Inmate of Insane Asylum to Escape

(Drew vs. Thaw (U. S.), 35 Sup. Ct. R. 137)

The Supreme Court of the United States reverses an order discharging Thaw on habeas corpus while held in New Hampshire on a warrant from the governor for his extradition to New York, where he was indicted for having conspired with certain persons to procure his escape from the Matteawan State Hospital for the Insane, and having escaped, to the obstruction of justice and of the due administration of the laws. The court says that it was suggested that it was not a crime for a man confined in an insane asylum to walk out if he could, and that therefore a conspiracy to do it could not stand in any worse case. But that depends on the statute. If the acts conspired for tend to obstruct the due administration of the laws, the New York statute makes the conspiracy criminal whether the acts themselves are so or not. The court does not regard it as open to debate that the withdrawal, by connivance, of a man from an insane asylum, to which he had been committed as Thaw was, did tend to obstruct the due administration of the law. At least, the New York courts may so decide. Therefore the indictment charged a crime. The most serious argument on behalf of Thaw was that if he was insane when he contrived his escape, he could not be guilty of crime, while if he was not insane, he was entitled to be discharged; and that his confinement and other facts scattered through the record required the court to assume that he was insane. But this was not Thaw's trial. Even if it be true that the argument stated offered a nice question, it was a question as to the law of New York which the New York courts must decide. The statute that declares an act done by a lunatic not a crime adds that a person is not excused from criminal liability except on proof that at the time "he was laboring under such defect of reason as: 1, not to know the nature and quality of the act he was doing; or 2, not to know that the act was wrong." The inmates of lunatic asylums are largely governed, it has been remarked, by appeal to the same motives that govern other men, and it well might be that a man who was insane and dangerous, nevertheless in many directions understood the nature and quality of his acts as well, and was as open to be affected by the motives of the criminal law as anybody else. How far such considerations shall be taken into account it is for the New York courts to decide, as it is for a New York jury to determine whether, at the moment of the conspiracy, Thaw was insane in such sense as they may be instructed would make the fact a defense.

Society Proceedings

NORTH SIDE BRANCH OF THE CHICAGO MEDICAL SOCIETY

Meeting held Jan. 15, 1915

The President, Dr. F. A. Jefferson, in the Chair

Trifacial Neuralgia and Its Treatment

Dr. Hugh T. Patrick: The striking characteristic which distinguishes trifacial neuralgia from almost all other pains about the head and face is the brevity of the pain. Another strongly diagnostic characteristic is that the pain may be started by slight peripheral irritations about the face, by eating, talking, drinking, brushing the teeth, washing the face, and so forth. It is a very rare case in which one cannot start the pain by taking a wisp of cotton and making a light wipe over the face. Another peculiarity about the starting of the pain is that an irritation in the distribution of one of the three branches of the trifacial may start the pain in another branch. I have called these areas from which pain may easily be started "trigger zones." There is no known definite cause of trifacial neuralgia. I am certain that arteriosclerosis and degenerative changes are not causative, and that it is not caused by anything like auto-intoxication, but I could not prove the latter statement. I have never found Bright's disease, diabetes, alcoholism or metallic poisoning to have any particular influence on the condition. Local infections and irritations in the area of the fifth nerve may have something to do in originating the disease. The proportion of my cases which gave a history of or had at the time of examination sinus disease or pyorrhea or a bad tooth, suppurating at the root, etc., is rather high, but I have never known a case to be cured by the removal of the teeth. Trifacial neuralgia is a distinct clinic entity. The pathology is unknown. Some think it is due to changes in the cells of the gasserian ganglion, but there is nothing to support that opinion. The prognosis is bad.

Medicinal treatment is not altogether ineffective. I have known of very good effects from heroic doses of aconitin, but this has to be given with care. The castor oil treatment is sometimes effective, but not often. Some cases have been treated by attending to anomalies of the eyes; some by taking spurs off the septum and pieces off the turbinates, but these treatments are always without permanent effect, in my experience. Really, the treatment of trifacial neuralgia is operative. The best operation, of course, is the radical removal of the gasserian ganglion, or section of the sensory root between the ganglion and pons, which is equally effective. But this is a very serious and difficult operation, and requires a refined technic. Even in the hands of some good general surgeons, the mortality runs as high as 10 per cent. and over. In the hands of experts it is not over 1 per cent. That, however, is the only operation that can be depended on to cure. A number of peripheral operations have been advocated, including the Abbé—section of the nerves at the base of the skull, with interposition of some substance to prevent the ends of the nerve from uniting, which is generally futile, but probably the best of the peripheral methods. It, too, is a difficult operation to perform. Some men advocate division of the nerves in the jaw, or at their exit, and pulling out as much as possible, but after nearly all these operations, the nerves regenerate and the pain returns.

There are several methods of alcohol injections for the treatment of trifacial neuralgia, that of Schlösser and that of Haertel, but, for the greater part, I have followed the method of Lévy and Baudouin, in which a straight needle is used, the point of entrance being at the lower border of the zygoma, relatively far forward for the middle branch, and farther back for the inferior branch. Injection of the first branch is done at the supra-orbital notch with a long hypodermic needle. Lately I have been using a very slender iridoplatinum needle, as advised by Brissaud and Sicard. With this needle the puncture is less painful, and penetration much easier, but once introduced, the needle is much less easily manipulated than the heavier one. All methods are uncertain as regards the accuracy with which the operator can put the needle into the nerve, and this uncertainty is the greatest objection to this treatment. When the injection is properly done, the dangers are practically nil. I have heard of one case in which a very considerable slough followed the injection, but I have never heard of a fatality. In accordance with the uncertainty of reaching the nerve, the results may be said to be exceedingly variable. If injection is made accurately into the nerve, the patient always has relief for at least a year, and in many cases for three or four years. If the alcohol is placed only alongside the nerve, the relief is short-lived. My own opinion is that young persons with this disease should have the radical operation done by one of the few surgeons with extensive experience with this operation. Old persons or those with some grave physical disease would better have the alcohol injections, because by this means, without risk, they may be kept comfortable as long as they live.

DISCUSSION

Dr. F. B. Moorehead: There are two or three things I wish to emphasize: first, the percentage of cases due to lesions in or about the jaws. I have never seen a case of trifacial neuralgia that was due to a demonstrable lesion of any sort. I have seen cases in which one tooth after another was removed, after each extraction there seeming to be a cessation of the pain, only to return again. I have never seen a case that gave any improvement whatever from the removal even of unerupted teeth, when it was a case of typical classic trifacial neuralgia. I have done a number of peripheral operations, some of which have done some good, and a number did not do very much good. The peripheral operation is absolutely to be condemned, because at most there will be a short period of relief from pain, and the chances are that when it recurs it will be worse than before, because in regenerated nerves there seems to be more irritability than before the nerve was excised. It is possible to do an operation which is exceedingly simple on the third branch, which I believe at present gives splendid hope of good results, and that is, with an incision not over an inch in length, made just at the shadow line in the region of the facial artery. One can easily go through transversely, find the canal in the lower jaw, and then it is a simple matter to work forward until the mental foramen is reached; then work back as far as possible and lift the nerve out of its bed completely. Then by avulsion the peripheral branch is removed. Then, by taking an instrument devised for the purpose, you can go backward and remove the entire nerve from the bony structure. If any of the nerve is left in the canal, it will be certain to regenerate, but with this simple operation thoroughly performed, it is possible to remove the third branch from the jaw completely. But when all is said and done, and the treatment of trifacial neuralgia is reviewed, alcohol injection is the best because it is simple, is not accompanied by any danger to the patient, can be done in the office, and is not especially painful.

Recent Methods of Treating Syphilis of the Nervous System

Dr. Harold N. Moyer: So far as one can judge at this time, neosalvarsan is far less dangerous than salvarsan, but not to be compared with it in efficacy. It was natural that the inefficiency of salvarsan in nervous syphilis should have led to investigations which resulted in the introduction of salvarsanized serum into the spinal theca. The intraspinal method in its various modifications can be credited with results not heretofore obtained in the use of salvarsan in nervous syphilis. Presumably the active constituent of salvarsan is arsenic, which is of known value in malarial and trypanosome infections, a class of organisms to which the *Treponema pallidum* belongs. As a means of introducing arsenic into the system it is inferior to older methods; it involves far more discomfort, and its dangers are by no means slight. I began experimenting with arsenic in the late eighties, and was early impressed with the fact that this substance is stored in the liver in larger quantity than in any other organ. It occurred to me that it would be therapeutically more efficient if introduced under the skin, to be absorbed by the general circulation, and in this way its effect on the nervous system would be greater. I have now used arsenic in the treatment of nervous syphilis for ten or twelve years, associated with the ordinary mercurial treatment, and have found this combination very effective. I use the arsenic in the form of sodium arsenate, which I believe to be the most valuable form of arsenic for the treatment of syphilis of the nervous system. Next comes salvarsan, in my opinion, and the least valuable form is sodium cacodylate. My first injections into the spine were given for the purpose of overcoming tabetic crises and pains, particularly the latter, and I used sodium cacodylate at that time, about eight or nine years ago. Later I changed to sodium arsenate injections into the spinal canal, and so far as I know without the slightest untoward result in any case. Some men, I believe, now inject small quantities of salvarsan into the spinal canal. I see no advantage in this, and I cannot see that the results are any better than those I get from the injection of sodium arsenate into the spinal canal. However, I have not injected it into the spinal canal for several years. Not that I would hesitate to do it in appropriate cases, but I believe practically the same results can be obtained by the persistent use of arsenic under the skin. I am an enthusiastic believer in the arsenic treatment of nervous syphilis as an adjuvant and associated with the mercurial treatment, with the occasional use of iodids. I do not believe in the value of salvarsan as compared with other forms of arsenic, particularly sodium arsenate, and for that reason do not use it in syphilis of the nervous system.

DISCUSSION

Dr. George W. Hall: Like Dr. Moyer, I am rather an enthusiast over the use of arsenic, but, unlike him, I am a strong adherent to the use of neosalvarsan in the treatment of syphilis. My work has been more especially along the line of intraspinal injections. I have made about fifty such injections of neosalvarsan, both in private work and at the Cook County Hospital. We withdraw from 16 to 18 c.c. of spinal fluid if possible. We never make an injection of 3 or more milligrams without the use of 16 c.c. of spinal fluid as the vehicle. I think unfortunate results have been due to the use of more concentrated solutions. We use freshly boiled distilled water as a solvent for the neosalvarsan in such dilution that 1 minim contains the required dose. We began this form of medication about a year ago, and in some instances have obtained very good results—whether permanent or not, I am not willing to say. In the meningitic cases we get better results than in the cases of arterial involvement of the central nervous system. In the early tabes cases we have had apparently good results by reduction of pain. Of course, the cases should be chosen carefully for intraspinal medication, just as we choose them for other methods of treatment. Men who are especially addicted to the use of alcohol should not be subjected to this treatment. Also, there is a good deal in the method of injection used. Sometimes the injection is made too high, and fluid is reinjected perhaps too rapidly. Sometimes it comes in contact with the nerves at the end of the cord in too concentrated solution, and in that way produces the bad results which we occasionally see reported. In other instances slight inflection follows the injection. Care should also be taken that the fluid injected should be near the body temperature—neither hot nor cold. In cases of general paresis I believe the intraspinal injections are of no importance whatever. Once in a while, however, we meet patients who have an idiosyncrasy toward this form of medication—either intraspinally or intravenously. The kidneys must be watched when neosalvarsan is used intravenously. We should not expect permanent results after two or three injections any more than we should expect to cure malaria with three doses of quinin. We should not stop at the third or fourth injection, but give five, or seven, or even eight injections, if necessary, if the patient can stand it, and along with these injections continue with the other treatment outlined, at the same time making occasional examinations of the spinal fluid, Wassermann tests, etc.

Dr. Hugh T. Patrick: We should be a little cautious in giving these injections, and watch the knee jerks all the time. If they weaken, the injections should be stopped at once. It is possible to produce a typical arsenical multiple neuritis. Recently I have been having a most distressing experience from the results of intravenous injections of neosalvarsan in the form of a marked dermatitis, which is exceedingly rare.

Dr. Harold N. Moyer: One must realize, when dealing with arsenic—whether in the form of salvarsan, neosalvarsan or the sodium arsenate—that he is dealing with a dangerous and toxic remedy. Many cases of arsenical neuritis following the use of Fowler's solution have come under my observation. The reason I have not found it necessary to use the injections into the spinal canal is that with the persistent, insistent, steady use of sodium arsenate I can apparently get enough absorbed by giving it under the skin. You must be persistent in the treatment, whether with neosalvarsan or sodium arsenate, but that also can be overdone. Go as far as the remedy will be tolerated. After reading the literature, and reviewing my own experience, my judgment is that salvarsan is a form of arsenical medication. If I am wrong, then this whole thesis falls. If I am right, then I believe my form of arsenical medication is better than salvarsan, more manageable, more efficient, and safer.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Philadelphia

January, XII, No. 3, pp. 379-553

1 *Nearthrosis or Arthroplasty. A. H. Tubby, London.
2 Study of Scope and Efficiency of Large Orthopedic Clinic. H. C. Low, Boston.
3 Supernumerary Bones of Foot—Roentgen Study of Feet of One Hundred Normal Individuals. E. S. Geist, Minneapolis.
4 *Use of Silk Ligaments at Ankle in Infantile Paralysis. R. W. Lovett, Boston.
5 Arthrodesis in Treatment of Lateral Deformity of Foot. R. E. Soule, New York.
6 *Mechanical and Operative Treatment of Poliomyelitis Anterior. P. W. Nathan, New York.
7 Case of Subacromial Bursitis, with Production of Lime in Bursa. L. W. Ely, San Francisco.
8 Air Embolus as Cause for Sudden Death in Subcutaneous Tenotomy for Relief of Congenital Wry Neck. W. G. Stern, Cleveland.
9 Congenital Defects of Tibia and Fibula. F. J. Gaenslen, Milwaukee, Wis.
10 Symmetrical Development Defects of Fourth Metacarpal. H. F. Day, Boston.
11 Cases of Rheumatic Arthritis Treated by Extract of Pituitary Body. B. H. Whitbeck, New York.
12 *Phenol Injection Treatment of Infected Joints. S. M. Cone, Baltimore.

1. **Nearthrosis or Arthroplasty.**—Before operating for the relief of an ankylosis, Tubby says, it is requisite to ascertain if the cause which has given rise to ankylosis is in abeyance at the time of the suggested operation, and if it has been in abeyance for some years. More particularly does this apply to tuberculosis. Old foci may be opened up, or they may be so extensive as to prevent reformation of the ends of the bones in the way desired. Tubby cites seven cases and expresses himself as being far from optimistic with regard to the future of nearthrosis by the interposition methods. In his cases in which some success was attained, cargile membrane or chromicized peritoneum was used. It seems to him that muscular fibers or fibers composed of fascia and adipose tissue; or failing them, chromicized cargile membrane or pig's bladder, are the best material so far in use. He further says that he had noted, if the extensor tendon be partly divided at the time of operation, the patient suffered little or no pain.

4. **Silk Ligaments at Ankle in Infantile Paralysis.**—Of seventy-nine operations performed by six operators on sixty-eight patients, fifty-one were periosteal insertions, and twenty, bone, while in eight it was not stated whether the bone or periosteal method was used. Of forty-four periosteal operations in which the result could be verified, 30 per cent. (13 cases) were successful; 20 per cent. (9 cases) were partially successful; 50 per cent. (22 cases) were failures. Of seventeen bone drill operations in which the result could be verified, 70 per cent. (12 cases) were successful; 12 per cent. (2 cases) were partially successful; 17 per cent. (3 cases) were failures. Lovett's belief, from the examination of these cases and from a study of their records combined with his clinical experience, is that the silk ligament operation in cases of dropped ankle from infantile paralysis is a useful operation attended by a good proportion of success; that a most rigid technic is necessary, and that the especial preparation of silk used is not what determines the outcome; that prolonged fixation and support are necessary, because the silk is not strong enough of itself to hold up the foot, but serves as the core of a ligament which is the real supporting structure.

6. **Surgical Treatment of Poliomyelitis Anterior.**—The more or less widespread tendency to perform ankylosing operations in poliomyelitis anterior is deprecated by Nathan. This applies particularly to the knee and shoulder joints. Whatever may be the case so far as the shoulder is concerned, he cannot see why a patient who wears a brace with a snap joint at the knee, is not better off than one with a perfectly stiff knee. He urges that the operative treatment of poliomyelitis anterior depends on and should be planned according to definite mechanical principles. It is not sufficient that the muscle whose tendon is to be transferred is physiologically intact; it must approximate in power (which can readily be determined), the force which it is to balance or overcome. The course must correspond, mathematically, with the direction in which the force to be transferred is to act, and the site of the implantation must be such that the greatest possible leverage may be obtained. Finally, in computing the resultant of the muscular forces, one should also more carefully consider the increased power to be gained by shifting the relative positions of the bones which make up the articulations, thus rearranging the lever arms and, in consequence, the balancing forces.

12. **Phenol Injection Treatment of Infected Joints.**—Cone has treated three cases of hydrops articuli with phenol followed by alcohol. The first case treated in 1904 had both knees involved. In this case he used 5 drops of pure phenol followed by 10 drops of alcohol. The patient, an old man, left the hospital in three weeks, all the effusion having disappeared. The last patient was treated in March, 1914; she had hydrops articuli of the right knee, and psoriasis. In this case Cone injected 10 drops of 5 per cent. phenol, followed by alcohol and in two weeks the swelling had disappeared. Of ten cases of gonorrheal joints with little pus formation and in which the diplococci were demonstrated, all were benefited; in two the pain was relieved after the first injection (5 per cent. phenol followed by alcohol), no further injection being required. In the other two or three injections were made before complete relief was afforded.

In five cases in which there was considerable distention of the joint, operation was required before complete relief was given. One of these recovered with a movable joint, walking five weeks after operation. In one case a staphylococcus infection of the elbow, referred after all palliative measures had been used with no relief of swelling or pain, one injection of 5 per cent. phenol followed by alcohol relieved the pain at once and in three days all swelling had disappeared, the patient going to work in a week. In three cases of villous arthritis there were no good results.

One patient with tuberculosis of the knee joint, in which tubercle bacilli were demonstrated, was using his knee with protection three months after two injections of 5 per cent. phenol and alcohol. He reported three years later perfectly well. One patient with an old tuberculous knee with dislocated patella, received two injections and three months later was not complaining of stiffness or swelling of the joint. Two cases of tuberculosis of the knee which were injected required subsequent incision but healed nicely three months after simple incision and drainage. In two cases, one streptococcal the other staphylococcal arthritis of the knee, they injected three times before very extensive operation, with prompt healing. One case of congenital syphilis of the knee joints in a boy of 16 years was not improved by the injections, but got well at once after one injection of ¼ grain of mercury biniodid in oil. Other cases of syphilis proved unresponsive to the phenol. In a case of obstinate sacroiliac joint trouble the injection of 5 drops of pure phenol followed by alcohol relieved the symptoms in a few weeks by locking the joint. This ankylosis was demonstrated a year later by roentgenogram. From the results of treatment by this method it would seem that the method is most reliable in all cases in which there has been no disorganization of the joint and the case is treated before extensive pus formation.

American Journal of Physiology, Baltimore

January, XXXVI, No 2, pp. 77-238

13 *Studies on Cerebrospinal Fluid. Effect of Pituitary Extract on Its Secretion (Choroidorrhea). L. H. Weed and H. Cushing, Boston.
14 *Blood-Pressure During Vomiting. C. Brooks and A. B. Luckhardt, Chicago.
15 **Effect of Thyroid Extracts on Blood-Pressure.* G. G. Fawcett, J. Rogers, J. M. Rahe and S. P. Beebe, New York.
16 *Influence of Oxalates, Citrates and Tartrates on Isolated Heart. W. Salant and S. Hecht, Washington, D. C.
17 Autolysis and Involution. M. Morse, Madison, Wis.
18 *Physiology of Stomach. Sensibility of Gastric Mucosa. A. J. Carlson and L. H. Braafladt, Chicago.
19 Variations in Irritability of Reflex Arc under Strychnin. E. L. Porter, Boston.
20 *Physiology of Stomach. Contractions of Rabbit's Stomach During Hunger. F. T. Rogers, Chicago.
21 *Id. Reflexes from Intestinal Mucosa to Stomach. E. H. Brunemeier and A. J. Carlson, Chicago.
22 Physiology of Cuvierian Organs of Holothuria Captiva Ludw. W. J. Crozier, Boston.
23 *Vasomotor Nerves of Duodenum. R. Burton-Opitz, New York.
24 Body Surface of Flounders and Its Relation to Gaseous Metabolism. S. Morgulis, New York.
25 *Influence of Pregnancy on Hyperglycemia of Pancreatic Diabetes. A. J. Carlson and H. Ginsburg, Chicago.
26 Validity of Inductorium Calibrations. E. G. Martin, Boston.

13. **Effect of Pituitary Extract on Secretion of Cerebrospinal Fluid.**—Extracts of the posterior lobe of the hypophysis introduced intravenously by Weed and Cushing served to discharge cerebrospinal fluid from a calibrated catheter introduced in its pathway (ventricle or subarachnoid cistern). Positive responses occurred to the injection of nearly all the fluid proprietary preparations, though in the authors' hands the desiccated extracts have proved to be the more active. The possible increment to the fluid through increased permeability of the cerebral capillaries and drainage out along the perivascular lymphatics was excluded in most of their experiments by the method of tapping the fluid pathway in the third ventricle rather than in the cisterna magna. The response occurred under most variable conditions and appeared to be independent of respiratory influences or hemodynamic reactions, for it may coincide with periods of respiratory cessation or acceleration or with periods of arterial hypertension or depression. A prolonged flow from the ventricle may continue even after death and may reach an amount apparently in excess of the normal content of the ventricles. That there is an actual increase in the amount of fluid secretion was shown by its non-recession into the cannula following periods of increased cerebral vascularity, as well as by the measurement of the amounts discharged. The evidence inclines Weed and Cushing to believe that the outflow under the circumstances of their experiments represents an actual secretory response rather than an expulsion of preformed fluid due to physical conditions resulting in changes in the volume of the brain. Hence their conclusion may be justified that: Extracts of the posterior lobe of the hypophysis increase the rate of production of cerebrospinal fluid (choroidorrhea) by stimulating the secretory activity of the choroid plexuses.

14. **Blood Pressure During Vomiting.**—According to Brooks and Luckhardt their experimental studies showed that vomiting is accompanied by marked changes in the circulatory system and interference with respiration. There is seen, sometimes, a period of elevated pressure, more frequently a *sudden and enormous drop in blood pressure with cardiac* inhibition at the moment of emesis, always periods of great oscillations in the blood pressure. These great and sudden oscillations of the blood pressure may cause a rupture of the blood vessels which would occur with the same pressure but with slower changes. The faint feeling accompanying emesis may be the result of the cerebral anemia occasioned by the cardio-inhibition and resulting drop in blood pressure.

15. **Effect of Thyroid Extract on Blood Pressure.**—The authors' experiments have been begun with an attempt to isolate from a watery extract of the fresh gland, all of the substances which can be separated, with as little alteration as possible of their chemical structure. These include the so-called nucleoproteins, globulins, coagulable and noncoagulable albumins, and the alcohol soluble and alcohol insoluble residue. Each of these bodies have been dissolved and injected intravenously in dogs, and the results on the blood pressure, respiration and heart action noted in the usual kymograph tracings. The solution of the alcohol soluble residue left after removal of all other substances has been found to be the only substance which produces any appreciable effect on the blood pressure. The glands used throughout these experiments have been pig thyroids. It was found that iodin is present in all the fractions of the extract. The coagulable fractions which are the richest of all the fractions in iodin, produce little or no depressor effect even in relatively enormous dosage. The "residue," or fraction of the extract which remains after the removal of the coagulable fractions, contains iodin, but in smaller quantity than the other fractions. The depressor effect of the "residue" bears no relation to the total iodin content of the gland from which the residue is derived. The depressor effect of the "residue," follows only after its intravenous injection. It is not manifested after subcutaneous injection. Tachycardia is not regularly produced by this depressor substance, although a very large dose (10 c.c.) does accelerate the pulse rate at the lowest points of blood pressure. Later, the force and rate of the heart beat return to normal with the return to normal of the blood pressure. The active portion of the "residue" is not precipitated by basic lead acetate; is not altered by boiling nor by passage through a Berkefeld filter; and is soluble in alcohol. No immunity to the depressor effect of the "residue" or of its active portion was noted during the limit of the experiment (from four to six hours).

16. **Influence of Oxalates, Citrate and Tartrates on Isolated Heart.**—The results obtained by Salant and Hecht show that sodium tartrate is much less active than citrate or oxalate. Equimolecular solutions of the latter, perfused for the same length of time, indicate that sodium citrate may be more toxic than oxalate.

18. **Sensibility of Gastric Mucosa.**—According to Carlson and Braafladt the normal gastric mucosa is devoid of pain and tactile sensibility, but protopathic temperature sensibility is present. Chemical (and possibly mechanical) stimulation of nerve endings in the normal gastric mucosa gives rise to a sensation identical with appetite. The stomach mucosa may be said to be provided with a protopathic appetite sense. The stimulation of the gastric mucosa does not contribute to the sensations of hunger and of fulness. Stimulation of the gastric mucosa increases the reflex excitability of the spinal cord, and induces changes in vasomotor tonus. The latter appears to be dependent on conscious cerebral processes induced by the gastric stimulation.

20. **Hunger Contractions in Stomach of Rabbit.**—During starvation of the rabbit, Rogers states, the stomach activities are augmented and the reflexes acting on the gastric motor mechanism are different from those of normal digestion peristalsis. There are no sharp dividing lines, however, between the normal peristaltic contractions occurring during digestion and those occurring during hunger. It would thus seem that, in the rabbit at least, the gastric hunger contractions are intensified digestive peristalses. The empty stomach of the rabbit shows very strong and rapidly repeated contractions and marked tonus variations. In the hungry rabbit *there is a state of increased tonus in the stomach musculature*. Tonus changes are more marked and occur more frequently during hunger than during normal digestion peristalsis. The contractions of the stomach occurring during hunger in the rabbit are not inhibited by the sight, smell, taste or chewing of food. The contractions occurring during hunger are inhibited or weakened by the introduction into the stomach of small quantities of water, weak acids, alcohol or sugar solution. Normal peristalsis is not inhibited by the same amounts of these solutions. Excitement (central nervous influences) inhibits the stomach contractions and causes a lowering of the tonus of the stomach musculature.

21. **Reflexes from Intestinal Mucosa to Stomach.**—Brunemeier and Carlson found that gastric juice, chyme, acids, alkalies, water, milk and oil introduced into the small intestine inhibit gastric hunger contractions and gastric tonus for varying periods. This inhibition of these gastric hunger contractions and tonus is due partly to mechanical, partly to chemical stimulation of the intestinal mucosa. The chemical stimulation produces the greater effect. This inhibition of gastric hunger contractions apparently take place primarily by the "long" or central reflex path, but "short" or local reflex paths in Auerbach's plexus are also involved.

23. **Vasomotor Nerves of Duodenum.**—Burton-Opitz concludes that the blood vessels of the duodenum are innervated by nerves which ascend from the celiac ganglion by way of the plexus gastroduodenalis and plexus pancreaticoduodenalis.

25. **Pregnancy and Pancreatic Hyperglycemia.**—Total extirpation of the pancreas in non-pregnant dogs by Carlson and Ginsburg resulted in the onset of pancreatic diabetes within from seven to twelve hours. Complete pancreatectomy *in pregnant bitches near term was not followed by hyperglycemia* and glycosuria, etc., so long as the fetuses were alive and the placental connections were not severed. At the onset of labor the blood sugar began to rise, so that the hyperglycemia with consequent glycosuria, characteristic of pancreatic as well as severe clinical diabetes was established on the completion of the delivery. This absence of diabetes, the authors state, may be due either to a secretion from the fetal pancreas reaching the maternal blood, or to some detoxicating action on the part of the fetal pancreas.

American Journal of Public Health, Boston

January, V, No. 1, pp. 1-84

27 Efficiency and Economy in Maintenance of Private Agencies Working for Public Health. W. C. Woodward, Washington, D. C.
28 Relation of City to Milk Supply. N. Straus, New York.
29 Coming Movement for Extending Human Life. I. Fisher, New Haven, Conn.
30 Typhoid and Its Sequelae. L. I. Dublin, New York.
31 Campaign Against Quacks. W. A. Evans, Chicago.
32 Cooperation and Coordination of Voluntary Public Health Organizations. F. R. Green, Chicago.
33 Effects on Public Health and Natural Prosperity from Rural Depopulation and Abnormal Increase of Cities. P. H. Bryce, Ottawa, Canada.
34 Use of Microscope in Diagnosis of Pellagra. B. W. Page, Lumberton, N. C.
35 Chemical Disinfection of Excreta. W. Dreyfus, New York.

American Journal of Roentgenology, Detroit

November, II, No. 1, pp. 497-540

36 Negative Diagnosis of Surgical Lesions of Stomach and Cap. L. G. Cole, Ithaca, N. Y.
37 Measurements with Coolidge Tube. J. S. Shearer, Ithaca, N. Y.
38 Case System of Teaching Roentgenology: Consideration of Necessary Relationship of such Teaching to General Medical Education. P. Brown, Boston.
39 *Early Diagnosis of Pulmonary Tuberculosis. *F. S. Bissell, Minneapolis*, and E. T. F. Richards, St. Paul.
40 Thoracopagus Lateralis. W. A. Quimby, Wheeling, W. Va.
41 Latent Pellagra and Roentgen Ray. G. M. Niles, Atlanta, Ga.

39. Abstracted in The Journal, Oct. 17, 1914, p. 1420.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

January, II, No. 7, pp. 429-488

42 Occurrence of Yaws in United States. E. J. Wood, Wilmington, N. C.
43 *Ameba Cultivated from Normal Human Intestine. M. Couret, New Orleans.
44 Recent Investigations in Relation to Infectious Diseases in South America. R. P. Strong, Boston.

43. **Ameba from Normal Human Intestine.**—From Curet's study it appears to be well established, that free-living ameba and ameba cultivated from the healthy intestine cannot produce typical amebic lesions in the gastro-intestinal canal or the liver of susceptible animals when introduced in pure cultures or with favorable bacterial symbiosis. When either one or several species of ameba were fed to animals or injected into their rectum with bacterial associations, the results were negative unless the symbiotic microorganism was capable of producing an intestinal upset. When pure cultures were used no results were obtained. Suspensions of one or many species of ameba, either in pure culture or associated with some microorganism, when injected into the liver of animals, failed to show lesions when the bacteria were omitted or were not pathogenic. Positive results were obtained only when the bacterium in symbiosis was pathogenic to the host. In every instance, the lesions when present did not suggest amebic invasion. Negative results followed when the ameba and their symbionts were injected into the liver of an animal previously immunized against the bacterium, although lesions followed the injection of the same ameba with the same symbiont in an animal not protected against the symbiotic organism. Control animals that were fed or injected with the various bacteria used as symbionts, without the ameba, developed the same symptoms, died as frequently and the lesions were similar to those in which the ameba were injected with the special microorganism.

Boston Medical and Surgical Journal

February 4, CLXXII, No. 5, pp. 161-200

45 *Study of Children with Positive Skin Tuberculin Reactions. O. F. Rogers, Jr., Boston.
46 Two Cases of Rupture of Intestine. L. Davis, Boston.
47 Urinary Acidity and Beta-Oxybutyric Acid Determinations in Recurrent Vomiting. Report of Case. W. S. Parker, Boston.
48 *Significance of Roentgen-Ray Examination Following Operation for Congenital Pyloric Tumor. C. L. Scudder, Boston.
49 Some Studies in Fat Indigestion. C. H. Dunn, Boston.
50 Acute and Chronic Empyema. W. Whittemore, Boston.
51 Case of Congenital Multiple Cystic Disease of Kidneys in which One Kidney was Removed. F. S. Watson, Boston.

45. **Children with Positive Skin Tuberculin Reactions.**—Rogers says that, before the age of 2, a positive skin reaction seems to be an indication that the child's life is likely to be short. The mortality among all children, up to the age of 10, who react to the von Pirquet test is much higher than that of normal children.

48. **Roentgen-Ray Examination Following Operation for Pyloric Tumor.**—Three authentic cases are referred to by Scudder in which the pylorus tumor discovered at operation has been seen from three to nine months following a plastic operation. These facts taken with the postoperative Roentgen-ray findings in twenty-six cases recorded, the author believes, afford a reasonable basis for the conclusion that the pyloric tumor persists and does not tend to disappear. The recognition of the persistence of the tumor in congenital pyloric stenosis is important. Scudder says that the tumor alone with the mucous membrane changes is an adequate cause of the obstruction in all its phases, and it is unnecessary to imagine a pyloric spasm associated with the obstructing tumor. The surgical treatment of these cases is, without question, the permanently effective treatment. The postponement of the operation with the idea, now so prevalent, that the hypothetic spasm will let up and the tumor disappear and the child recover is unjustifiable. A baby having tumor obstruction will always have tumor obstruction. The omission of the hypothetic pyloric spasm from any consideration in these cases will result in earlier adequate surgical relief.

Indiana State Medical Association Journal, Fort Wayne

January, VIII, No. 1, pp. 1-62

52 Medicine. G. Van Sweringen, Fort Wayne.
53 Gynecology. O. G. Pfaff, Indianapolis.
54 General Surgery. H. O. Bruggeman, Fort Wayne.
55 Bacteriology and Pathology. H. S. Thurston, Indianapolis.
56 Neurology and Psychiatry. A. E. Sterne, Indianapolis.
57 Pediatrics and Orthopedic Surgery. M. F. Porter, Jr., Fort Wayne.
58 Ophthalmology. J. R. Newcomb, Indianapolis.
59 Otolaryngology. E. M. Shanklin, Hammond.
60 State Board of Health. J. N. Hurty, Indianapolis.
61 Indiana University School of Medicine. C. P. Emerson, Indianapolis.

Iowa State Medical Society Journal, Des Moines

January, V, No. 1, pp. 1-40

62 Diagnosis of Cancer of Intestinal Tract. W. Jepson, Sioux City.
63 Postoperative Ileus. J. R. Guthrie, Dubuque.
64 Austin Flint-Cedar Valley Medical Association. W. F. Cobb, Lyle, Minn.
65 Case of Brain Abscess. L. C. Kern, Waverly.
66 Tetanus, Its Early Recognition and Treatment. R. H. Pyles, Hudson.
67 New Conservative Turbinate Operation. E. P. Weih, Clinton.

Journal of Biological Chemistry, Baltimore

January, XX, No. 1, pp. 1-94

68 Blood Relationship of Animals as Displayed in Composition of Serum Proteins. III. Comparison of Serum of Hen, Turkey, Duck, and Goose with Respect to Their Content of Various Proteins. W. B. Thompson, Los Angeles.
69 Id. IV. Comparison of Serum of Pigeon, Rooster and Guinea Fowl with Respect to Their Content of Various Proteins in Normal and Fasting Condition. R. S. Briggs, Los Angeles.
70 Precipitation of Serum Albumin and Glutin by Alkaloidal Reagents. P. J. Hanzlik, Vienna.
71 Simpler Nucleotides from Yeast Nucleic Acid. W. Jones and A. E. Richards, Baltimore.
72 Studies on Fasting Flounders. S. Morgulis, Woods Hole, Mass.
73 *Examination of Folin-Farmer Method for Colorimetric Estimation of Nitrogen. J. C. Bock and S. R. Benedict, New York.
74 *Method for Estimation of Sugar in Small Quantities of Blood. R. C. Lewis and S. R. Benedict, New York.
75 Synthesis of Hippuric Acid in Experimental Tartrate Nephritis in Rabbit. F. B. Kingsbury and E. T. Bell, Minneapolis.
76 Soluble Polysaccharides of Lower Fungi. III. Influence of Autolysis on Mycodextrin Content of Aspergillus Niger. A. W. Dox, Iowa City, Ia.
77 Case of Lipemia. C. G. Imrie, Toronto.
78 Fibrin. A. W. Bosworth, Boston.

73. **Folin-Farmer Method for Estimation of Nitrogen.**—Analysis by Bock and Benedict of some seventy samples of urine by the Folin-Farmer colorimetric method showed that this method usually agrees with the Kjeldahl method within about 2 or 3 per cent. For the most part the figures by the Folin-Farmer method were appreciably lower than by the Kjeldahl process, but variations occurred between + 4 per cent. and — 11.8 per cent. of the total quantity of nitrogen present. Therefore the Folin-Farmer method is not to be regarded as equivalent to the ordinary Kjeldahl procedure in accuracy or reliability. Two modifications of the Folin-Farmer method are presented, one of which is recommended as of service in blood analysis or in cases in which only small quantities of material are available. The results reported show that the Folin-Farmer method can be employed with advantage in any instances in which the total quantity of nitrogen present is very small (as in the determination of the total non-protein nitrogen of the blood), because a high percentage error is of much less importance in such analyses.

74. **Estimation of Sugar in Blood.**—The red color obtained by heating a dextrose solution with picric acid and sodium carbonate is employed as the basis of the method proposed by Lewis and Benedict for the determination of blood sugar. The blood protein is removed by precipitation with picric acid. The method of blood sugar determination is as follows: Two c.c. of blood are aspirated through a hypodermic needle and piece of rubber tubing into an Ostwald pipet, a little powdered potassium oxalate in the tip of the pipet preventing clotting. The blood is drawn up a little above the mark and the end of the pipet is closed by the finger. After the rubber tubing and needle are disconnected, the blood is allowed to flow back to the mark and is discharged at once into a 25 c.c. volumetric flask containing 5 c.c. of water. The contents of the flask are shaken to insure thorough mixing and the consequent hemolysis of the blood. Then 15 c.c. of saturated aqueous solution of picric acid are added, as

well as a drop or two of alcohol to dispel any foam, and the contents of the flask are made up to the mark with water and then shaken. After filtration 8 c.c. aliquots are measured out into large Jena test tubes for duplicate determinations. Two c.c. of saturated picric acid solution and exactly 1 c.c. of 10 per cent. sodium carbonate are added (as well as two glass beads and 2 or 3 drops of mineral oil), and the contents of the flask are evaporated rapidly over a direct flame until precipitation occurs. About 3 c.c. of water are added, the tube is again heated to boiling to dissolve the precipitate, the contents of the tube are transferred quantitatively to a 10 c.c. volumetric flask, cooled, made up to the mark, shaken, and then filtered through cotton into the colorimeter chamber. The color is compared at once with that obtained from 0.64 mgm. of dextrose, 5 c.c. of saturated picric acid, and 1 c.c. of 10 per cent. sodium carbonate, when evaporated to precipitation over a free flame and diluted to 10 c.c. The calculation of the sugar present in the unknown blood sample is very simple. The original 2 c.c. of blood were diluted to 25 c.c. and of this amount 8 c.c. were taken for a determination. In other words, the aliquot contained the equivalent of $8/25 \times 2$ c.c., or 0.64 c.c. of blood.

Journal of Medical Research, Boston

January, XXXI, No. 3, pp. 331-568

79 *Colloidal Silver with Lecithin, in Treatment of Malignant Tumors. G. L. Rohdenburg, New York.
80 *Significance of Bacteria Cultivated from Human Cadaver. M. M. Canavan and E. E. Southard, Boston.
81 *Protective Value of Aqueous Extract (Hiss) of Leukocytes in Acute Infections in Animals. W. E. Youland, Jr., New York.
82 *Therapeutic Use of Aqueous Extract of Leukocytes (Hiss) in Lobar Pneumonia. W. R. Williams and W. E. Youland, Jr., New York.
83 Nodular Endarteritis of Aorta about Intercostal Arteries. O. Klotz, Pittsburgh.
84 *Reaction of Cows' Milk Modified for Infant Feeding. W. M. Clark, Washington, D. C.
85 *Study of *Streptococci Isolated from Certain Presumably* Milk-Borne Epidemics of Tonsillitis Occurring in Massachusetts in 1913 and 1914. T. Smith and J. H. Brown, Boston.
86 Agglutination Affinities of Pathogenic Bacillus from Fowls with Typhoid Bacillus of Man. T. Smith and C. TenBroeck, Boston.
87 Pathogenic Action of Fowl Typhoid Bacillus with Special Reference to Certain Toxins. T. Smith and C. TenBroeck, Boston.
88 Relation Between B. Pullorum (Rettger) and Fowl Typhoid Bacillus (Moore). T. Smith and C. TenBroeck, Boston.
89 Attenuation of Virus in Blood of Cholera Hogs to Prepare Vaccine. R. Graham and A. L. Brueckner, Louisville, Ky.

79. **Colloidal Silver with Lecithin, in Treatment of Tumors.**—The experiments described by Rohdenburg were negative.

80. **Bacteria Cultivated from Human Cadaver.**—Canavan and Southard present the results of a second series of 100 bacterial cultivations from a heart's blood and the cerebrospinal fluid post mortem in cases of mental disease. The bacteria were cultivated on agar plates inoculated with 1.5 c.c. heart's blood and others with 1.5 c.c. cerebrospinal fluid. Of the blood cultures, 44 per cent. remained sterile. Of the cerebrospinal fluid cultures, 24 per cent. remained sterile. Cocci prevailed and there were more cultivations of cocci from the cerebrospinal fluid than from the blood.

81. **Protective Value of Aqueous Extract.**—The possibility of leukocytes containing neutralizing substances within the meaning of immunity, Youland says, is remote. Leukocyte extract apparently exerts its action on animal infections only in the border line type of infection, and is without curative value in more constant conditions.

82. **Therapeutic Use of Aqueous Extract.**—The negative results Williams and Youland have obtained from the use of leukocyte extract as regards its action on the temperature, the leukocyte count, the condition of the patient, and on the course and termination of the disease, offer little hope of any appreciable therapeutic results from the use of this agent in lobar pneumonia.

84. **Reaction of Cow's Milk Modified for Infant Feeding.**—The addition of alkalis to modified milk for the purpose of neutralizing "the high acidity of cows' milk," Clark says, is based on wrong principles. The addition of alkalis to modified milk for the purpose of preventing firm clots in the infant stomach, is a procedure which not only may be unnecessary, but one which involves a possible inhibition of both gastric proteolysis and lipolysis. Finally, the addition of alkalis to modified milk is criticized because of its probable influence in displacing from the intestine a normal bacterial fermentation and replacing it with those proteolytic or "putrefactive" processes which are responsible for many of the digestive disorders of infancy.

85. **Streptococci Isolated from Milk-Borne Epidemics of Tonsillitis.**—The streptococci causing epidemics of tonsillitis, according to Smith and Brown, are not necessarily the same in different epidemics either in the same or different localities. The success likely to attend the tracing of such epidemics to their source will depend on a minute, detailed study of individual strains of streptococci and the discovery of certain minor distinguishing characteristics as guides. The streptococci which have been the agents of recent outbreaks are all alike in that the colonies produce, immediately around them, a clear hemolyzed area on blood agar plates (horse blood). They differ from the common throat coccus, in which the colony has a partly discolored and hemolyzed mantle between it and an outer, narrow, clearer zone. There is, at present, no satisfactory evidence that bovine streptococci associated with mastitis or garget are the agents of tonsillitis in man. Whenever cases of garget are suspected as sources of infection in man, both human and bovine types should be looked for.

Lancet-Clinic, Cincinnati

January, 23, CXIII, No. 4, pp. 81-108

90 *Present-Day Conception of Treatment of Nephritis. A. R. Elliott, Chicago.
91 Functional Tests in Renal Surgery. J. T. Geraghty, Baltimore.
92 Abortion: With Special Reference to Its Medicolegal Aspects. W. Gillespie, Cincinnati.

January, 30, No. 5, pp. 109-142

93 Modern Syphilis Therapy and Central Nervous System from Biologic Point of View. C. D. Camp, Ann Arbor, Mich.
94 Remarks on Antituberculosis Campaign. H. J. Achard, Asheville, N. C.
95 Antinoci Association. N. Rosewater, Cleveland.

90. Abstracted in The Journal, Nov. 21, 1914, p. 1878.

Medical Record, New York

February 6, LXXXVII, No. 6, pp. 211-252

96 Treatment of Sciatica by Perineural Infiltration with Physiologic Saline Solution. W. M. Leszynsky, New York.
97 Treatment of Sciatica by Epidural Injection of Saline Solution. I. Strauss, New York.
98 Mexican Typhus Fever. H. C. Michie, Jr., U. S. Army.
99 *Danger of Delay in Diagnosis and Treatment of Intussusception in Infancy. E. W. Peterson, New York.
100 *Deep Roentgen Therapy and Its Application in Treatment of Malignant Growths. S. Stern, New York.
101 Quinsy or Peritonsillar Abscess. E. H. Griffin, New York.
102 Pituitary Extract in Uterine Bleeding. A. Jacoby, New York.
103 Prevention, Treatment and Cure of Tuberculosis. O. Paget, Fremantle, W. Australia.
104 Splenectomy for Pernicious Anemia; Apparent Recovery; Death. J. F. Baldwin, Columbus, O.

99. **Danger of Delay in Diagnosis and Treatment of Intussusception in Infancy.**—The following points are emphasized by Peterson. 1. Intussusception in infancy presents a rather uniform and characteristic picture and should be recognized without difficulty. 2. Aerohydrostatic and mechanical measures can succeed in but a limited number of cases. Such treatment is not without danger. 3. Early laparotomy, with manual reduction of the invagination, is the safest, the simplest, and the most successful method of treatment.

100. Abstracted in The Journal, Oct. 10, 1914, p. 1321.

New Mexico Medical Journal, Las Cruces

January, XIII, No. 4, pp. 115-155

105 Artificial Pneumothorax in Treatment of Tuberculosis. A. G. Shortle, Albuquerque.
106 Effect of Direct Rays of Sun on Experimental Tuberculosis. D. C. Twichell, Albuquerque.
107 Optimum Dose of Tuberculin. J. F. McConnell, Colorado Springs, Colo.
108 Immunity and Tuberculosis. J. S. Cipes, Albuquerque.
109 Artificial Pneumothorax in Treatment of Tuberculosis. Report of Twenty Cases. E. H. Burns, Fort Bayard.

New Orleans Medical and Surgical Journal

February, LXVII, No. 8, pp. 671-748

110 *Emetin in Pyorrhea Alveolaris. C. C. Bass and F. M. Johns, New Orleans.
111 Acute Suppurative Osteomyelitis. J. F. Oechsner, New Orleans.
112 Two and Half Years' Experience with Phenolsulphonephthalein Test. S. Logan, New Orleans.
113 Intermittent Temperature in Typhoid. N. F. Thiberge, New Orleans.
114 "Modified" Bubonic Infection in Rats and Guinea-Pigs. N. H. Swellengrebel and L. Otten.

110. **Emetin in Pyorrhea Alveolaris.**—Further observations have led Bass and Johns to consider one hypodermic of ½ grain of emetin given every few days after the first course of several doses, as recommended in their former paper, to be of comparatively little value. If it is necessary to repeat the emetin it should be given for at least three days, as at first. The only indication for repeating the emetin treatment is the presence of ameba, which can best be determined by proper microscopic examination. The fact that it is sometimes necessary to make and examine several preparations from a lesion before ameba are found shows that even this method may be misleading, especially when negative. The authors emphasize the fact that the emetin destroys the ameba by some specific action, but that, after the ameba have been destroyed, the lesions remain, and will require a variable length of time to heal, according to the extent and character of the lesion, and other influences. The pocket is usually extensive and contains necrotic and, often, tough tissue (especially periosteum in the bottom), and more or less carious bone. For nature to liquefy and remove this material will necessarily require a considerable length of time, during which there must continue to be more or less pus formation. As long as the lesion is not healed up it naturally offers favorable soil for reinfection.

Bass and Johns have experimented considerably with fluidextract of ipecac as a local application made by the patient for the purpose of preventing reinfection, and have learned that not only will it theoretically prevent reinfection, but it will actually destroy the ameba present in many early lesions. The proper method of using it seems to be to brush the teeth in the usual way to clean, and then to apply one drop of fluidextract of ipecac to the wet rush and brush again forcing some of the solution between the teeth and spitting out the excess, but do not wash it out. They advise that all persons now free from the disease should use this specific, either in this form or possibly in some other form, as a prophylactic instead of the many commercial preparations now in use.

New York Medical Journal

February 6, CI, No. 6, pp. 229-276

115 *Active Immunization of Hay-Fever. S. Oppenheimer and M. J. Gottlieb, New York.
116 History of Extirpation of Spleen. E. B. Krumbhaar, Philadelphia.
117 Sexual Impotence. I. S. Koll, Chicago.
118 Is Sight to Be Sole Intellectual Sense? A. L. Benedict, Buffalo.
119 Digitalis Therapy. S. Neuhof, New York.
120 Chronic Indigestion Associated with Chronic Appendicitis. J. J. Gilbride, Philadelphia.
121 Nose, Throat and Ear Conditions. R. B. Scarlett, Trenton, N. J.
122 Urine in Old Age. H. Greeley, New York.
123 Case of Chronic Parenchymatous Nephritis with Myocarditis. H. A. Fisher, New York.

115. **Active Immunization of Hay-Fever.**—Oppenheimer and Gottlieb endeavored to immunize patients by injecting gradually increased doses of pollen extract to produce tolerance to the anaphylatoxin formed in the body. Beginning with from 1 to 5 units of pollen extract, the dose was gradually increased until a local reaction appeared at the site of the injection. This dose was then continued until the patient showed no more reaction. Then the dose was gradually increased as before. One unit of pollen toxin is the amount of antigen dissolved in 1 c.c. of extract at a dilution of from 1 to 20 millions. Eleven patients were treated in 1914, before and during the season for autumnal catarrh. Six patients were treated in advance of the attack. One of these was cured for the season, four exhibited very mild symptoms, and one was not improved. Five were treated during the attack. The symptoms in four subsided after receiving from one to four injections, whereas one patient received no benefit. Altogether there were five cures for the season. In four cases there was marked improvement In two cases there was no improvement. Of the two cases that were not improved, one patient had a polypoidal degeneration of the middle turbinate with underlying bone necrosis.

The other reacted to both ragweed and golden rod pollen. He received in all thirty-three injections, alternating the ragweed extract and the golden rod extract. He came very irregularly. It is possible that at times the treatment was too intensive. His physical condition was so poor that possibly a tolerance could not develop. Nine patients reacted to ragweed pollen and two reacted to that of both ragweed and golden rod. Both of these received both golden rod and ragweed antigen hypodermically. One was cured, but the other was not improved. The authors describe in detail their method for obtaining the pollen. It is extremely cumbersome and Oppenheimer and Gottlieb are now working on a less laborious method.

Ophthalmology, Seattle

January, XI, No. 2, pp. 237-436

124 Original Research in Ophthalmology and Otolaryngology on Pacific Coast. C. T. Cooke, Seattle.
125 Sclerocorneal Trephining in Operative Treatment of Glaucoma. R. H. Elliot, Seattle.
126 Surgical Clinic of Col. Robert Henry Elliott. G. W. Swift, Seattle.
127 Sclerocorneal Trephining. E. E. Holt, Jr., Portland, Me.
128 Case of Glaucoma Cured by Elliot Operation. N. H. Goodenow, Everett.
129 Relation of Special Sense Functions to Intracranial Diseases. W. House, Portland, Ore.
130 Ultraviolet Light and Some of Its Effects. F. A. Osborn, Seattle.
131 Anomalies of Accommodation and Their Practical Significance. J. L. McCool, Portland, Ore.
132 Smith Indian Cataract Operation in Light of Scientific Investigation. A. S. Green and L. D. Green, San Francisco.
133 Delayed Healing of Wound in Cataract Extraction and Its Proper Treatment. D. T. Vail, Cincinnati.
134 Twelve Consecutive Intracapsular Cataract Operations and Their Visual Results. W. A. Fisher, Chicago.
135 Should Intracapsular Method of Cataract Extraction be Adopted by Oculist of America? O. Tydings, Chicago.
136 Annular Opacity of Anterior Surface of Lens after Traumatism. C. Zimmermann, Milwaukee, Wis.
137 Two Cases of Exophthalmic Goiter with Ocular Muscle Complications. L. M. Willard, Wausau, Wis.
138 Results of Examination of 500 Consecutive Cases with Stilling's Plates. G. H. Taylor, Sydney, New South Wales.
139 Extraction of Metallic Foreign Body from Vitreous by Giant Magnet Through Scleral Incision. Report of Case. C. B. Welton, Peoria, Ill.

Pennsylvania Medical Journal, Athens

January, XVIII, No. 4, pp. 251-332

140 Borderland Topics in Ophthalmology and Otolaryngology. J. C. Beck, Chicago.
141 Antityphoid Vaccination. E. R. Whitmore, Washington, D. C.
142 *Value of Typhoid Vaccines in Typhoid. E. B. Krumbhaar and R. Richardson, Philadelphia.
143 Salvarsan in Therapeutics of Childhood. T. Le Boutillier, Philadelphia.
144 Syphilis in Children. W. C. Hollopeter, Philadelphia.
145 *Appendicitis as Seen by Internist. Report Based on Seven Hundred Cases. J. A. Lichty, Pittsburgh.
146 Appendiceal Dyspepsia. J. J. Gilbride, Philadelphia.
147 Correlation of Appendicitis and Other Abdominal Affections. L. J. Hammond, Philadelphia.
148 Cesarean Section. E. P. Davis, Philadelphia.
149 Indications for Cesarean Section. H. A. Miller, Pittsburgh.
150 Operative Procedure in Treatment of Gunshot Wounds of Stomach and Intestines. J. A. Klump, Williamsport.

142. **Value of Typhoid Vaccines in Typhoid.**—The curative use of typhoid vaccines in the course of typhoid in order to stimulate further antibody formation, according to Krumbhaar and Richardson, has a logical theoretic basis, although its mode of action has not as yet been demonstrated experimentally. Practical proof of its value is afforded by the rise in agglutinin curves after such vaccination. The proper use of vaccines in the treatment of typhoid has been found in over 1,800 cases cited by various clinicians to be without harm, and usually to be followed by beneficial results. The 93 cases reported by the authors support this view. The best results are obtained if the injections are begun early in the disease, especially before the tenth day. Late in the course of the disease, except in selected cases, the value of

vaccine (both theoretically and practically) is more dubious. In the chronic complications of typhoid, such as periostitis and cholecystitis, other investigators have obtained good results from vaccines. The contra-indications against vaccine treatment of typhoid are not yet clear. The authors hesitate to advocate their use in moribund or very toxic cases, during hemorrhages or suspected perforations, or in such complications as pneumonia or otitis in cases in which other organisms are involved.

The best dosage has also not been determined. Semple, Petrowitch, Watters and Eaton have had good results with small doses; MacArthur, Fletcher, Meakins and Foster equally good results with much larger doses. While this would indicate to some that the true benefit lay elsewhere, Krumbhaar and Richardson feel that the discordance is due to differences of patients and epidemics, preparation of vaccines, and "personal factors." The dosage must vary within certain limits for each patient and no cut and dried rule should be attempted. The more severe the infection, the smaller and more cautious must be the dosage. With their methods of preparation, they felt that the best initial dose for the average adult was 500 million; if this proved to be the proper amount, two or more larger doses were given usually at three-day intervals.

145. **Appendicitis.**—Since only eight out of about 700 patients seen by Lichty under all conditions and circumstances died, he believes that the disease need not be considered with such alarm. He adds, however, that an early operation during the first acute attack is not only safest but will likely prevent a life of more or less chronic invalidism. He advises that a careful routine study of the leukocytes in acute appendicitis is of diagnostic value, and a routine study of the gastric secretion in chronic appendicitis yields valuable information. The end results in cases of chronic appendicitis are often unsatisfactory and can not be definitely foretold.

Texas State Journal of Medicine, Fort Worth

January, X, No. 9, pp. 347-394

151 Some of Our Problems. I. Dyer, New Orleans.
152 What Must We Do To Be Saved? L. H. Reeves, Decatur.
153 Baby Health Contest an Educational Factor in Preventive Medicine. J. I. Collier, Taylor.
154 Waste in Medical Education. J. H. Mackay, Francitas.
155 Sociologic View of Refractive Errors. W. G. Hartt, Marshall.
156 Neglect of Deformities in Children. C. S. Venable, San Antonio.
157 Pessimism Concerning Treatment of Cancer. J. T. Moore, Houston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

January 23, I, No. 2821, pp. 145-188

1 Surgical Notes from Temporary Clearing Hospital at Front. A. A. Martin.
2 Acidosis and Nitrogen Partition in Pregnancy. H. L. Murray.
3 *Cases of Inoperable Cancer Treated with Goat Serum. A. Wilson.
4 Case of Tetanus: Recovery. J. H. Ewart.

3. **Cases of Inoperable Cancer Treated with Goat Serum.**—In 1890 a patient, aged 60, suffering from inoperable cancer of the uterus was treated by Wilson with goat serum. Six ounces of serum were injected into the basilic vein. The serum reaction was severe. The uterus healed in about six weeks and the disease was apparently cured. She lived two years and died of an acute disease. Five other cases are cited by Wilson suggesting that the goat serum relieves pain by attacking the outskirts of the advancing growths, retarding or preventing their advance into normal and sensitive tissues. A sufficiency of the same chemical action ought to lead to shriveling up of the tumor, and did so in some instances.

Bristol Medico-Chirurgical Journal, London

December, XXXII, No. 126, pp. 257-325

5 Evolution of Gynecology. W. H. C. Newnham.
6 Bristol Medical Societies. G. M. Smith.
7 Treatment of Coliuria in Children. R. G. Gordon.
8 Some Impressions of 1914 British Pharmacopeia. O. C. M. Davis.

Lancet, London

January 23, I, No. 4769, pp. 171-216

9 Against His Own Body (Sex Topics). D. Power.
10 *Black (Pigmented) Appendix. W. H. Battle.
11 *Theory of Salicylate Therapy in Rheumatic Infection. R. Miller.
12 Dry Cupping in Laryngeal Affections. W. Stuart-Low.
13 Some Uses of Static Electricity in Medicine and Surgery. J. J. Grace.
14 Congenital Lymphangioma Situated Over Sternum. J. A. C. Macewen.
15 An Extraordinary Accident. T. O. Thompson.
16 Simple Splint for Fractures of Upper Extremity. M. W. B. Oliver.
17 Removal of Sebaceous Cyst Under Suggested Anesthesia. J. W. A. Cooper.

10. **Black (Pigmented) Appendix.**—Two cases of marked pigmentation of the appendix met with in women of different ages and circumstances are cited by Battle making a series of six cases seen by him and which present some common features. In the first place there was an extensive brownish-black pigmentation evidently not limited to the appendix but spreading an unknown distance into the large bowel. The patients were all females (aged 27, 30, 32, 43, 48 and 48) and in each there was a history of constipation of long standing, which amounted to intestinal stasis in more than one of them according to their attendants. It would appear as if in some the difficulty with the bowels had led to a secondary inflammatory affection of the appendix. Operation in each was for the relief of pain caused by this. The pigmentation was found on examination of the removed appendix, and in only one was there any appearance of darkening of the bowel as examined from the operation incision. Microscopic examination showed the deposit to be both in and between the cells of the mucous membrane.

Chemical analysis of the first three specimens showed that the pigmentation was produced by a deposit of iron, the exact combination not being defined owing to the small quantity of material available. There was no bismuth, lead, or mercury present. In only one patient was there any history of the taking of iron in medicine, and she had been given the compound syrup of the hypophosphites. As to the source of iron, Battle says, there can be very little doubt that it is derived from wheat flour prepared by the iron rollers which are used in the modern process of milling. Chemical examination of a quantity of best flour has shown the presence of an abnormal amount of iron, although none could be separated from the flour by means of a magnet. The question of the influence of roller milling in the causation of appendicitis is one which has interested Battle for some years. Facts are accumulating to show that it is a serious factor.

11. **Salicylate Therapy in Rheumatic Infection.**—That salicylate has the power of diminishing the activity of the rheumatic infecting agent, Miller says, may be taken as the working basis of salicylate therapy in rheumatism, and the drug should be administered with the sole view of controlling the bacterial activity. Of this the temperature chart is as accurate an index in rheumatic as in other infections (namely, tuberculosis). Care must be taken to discriminate between symptoms directly due to active rheumatic inflammatory processes and those dependent on toxic parenchymatous changes which may remain long after all bacterial activity is at an end. The temperature chart is the guide to the dose of salicylate to be employed. Used solely with a view to controlling bacterial activity; the effective range of dosage for child or adult is usually from 60 to 120 grains per diem. Less than 1 dram daily is rarely sufficient; more than 2 drams need seldom be given. Much larger doses than these have been shown to be safe if properly administered, and if necessary to gain control, may be used, but for the most part "massive" doses have been administered in cases of chorea in which there was no evidence of bacterial activity remaining.

Any dose greater than 100 grains daily should be given subdivided into 10 doses in the twenty-four hours. Large infrequent doses should never be given, particularly in children. Constipation must be avoided. The sodium salicylate should be combined with an equal dose of sodium bicarbonate;

Miller has not found the double quantity of soda necessary in doses of this grade. Vomiting in cases of severe cardiac dilatation may be difficult or impossible to prevent, but in other cases may be avoided for the most part. The more serious symptoms of salicylate poisoning (acid intoxication) should nowadays never be allowed to arise.

Quarterly Journal of Medicine, London

January, VIII, No. 30, pp. 97-190

18 *Dyspnea and Its Relation to Blood Reaction (Acidosis). T. Lewis and J. Barcroft.
19 *Congenital Myotonia; Thomsen's Disease. W. Johnson and G. Marshall.
20 Rationale or Modus Operandi of Wassermann Reaction and Abderhalden's Test. J. E. R. McDonagh.
21 Metabolism of Nitrogen in Dermatoses. H. L. Tidy.
22 Salvarsan Treatment of Congenital Syphilis. L. Findlay and M. E. Robertson.

18. **Dyspnea and Its Relation to Blood Reaction.**—The following is a synopsis of the cases reported by Lewis and Barcroft. 1. Dyspnea in a man who presented signs of renal and myocardial affections. Nocturnal attacks. Acidosis was found on two occasions. 2. A case of cardiovascular affection. Dyspnea on exertion and nocturnal angina pectoris. Acidosis found. 3. A case of arteriosclerosis and renal affection in a woman who exhibited breathlessness. Nocturnal attacks and Cheyne-Stokes breathing present. Acidosis found. 4. A case of cardiorenal affection in an old woman. Cheyne-Stokes breathing and dyspnea prominent. 5. Aortic disease and aneurysm, cardiac failure, renal involvement. Dyspnea, often intensified for short periods, was a chief feature of the case. Cheyne-Stokes breathing was found. 6. A case of aortic disease, cardiac failure and renal involvement. Dyspnea, Cheyne-Stokes breathing, nocturnal intensification of breathlessness, prominent. Terminal pneumonia present. 7. Cardiac failure of rheumatic or specific origin, in a man who exhibited mitral stenosis and aortic disease. Dyspnea present. No acidosis. 8. A case of mitral stenosis with auricular fibrillation and cardiac failure. No acidosis found. 9. Cardiac failure in a patient who exhibited mitral stenosis. Dyspnea present, but no acidosis. 10. Pregnancy in a patient suffering from rheumatic heart disease. Breathlessness accompanied by acidosis. 11. A case of large white kidney, with dropsy of renal type, complicated by aortic disease and slight mitral stenosis. Urgent breathlessness in the absence of cyanosis was a feature of the case. Acidosis was discovered. 12. Pneumothorax giving rise to acute illness in a dormant case of pulmonary tuberculosis. Dyspnea accounted for, partially at all events by acidosis. 13. A case of exophthalmic goiter, complicated by maniacal symptoms, persistent vomiting, and distress of breathing in a young man. Acidosis was found. Death from exhaustion. 14. A case of acute pneumonia in a young man, ending in recovery. On the fourth day acidosis was found. The crisis occurred on the eighth day; acidosis though of lesser degree, was present on the tenth day; during convalescence the blood reaction was normal. 15. A case of severe acute pneumonia in a young man, terminating fatally. Profound acidosis was discovered on the tenth day of illness. 16. A case of acute pneumonia, ending fatally, in an elderly woman. Acidosis was found on two occasions during the course of the illness. The CO_2 tension in exposed air was low. 17. A case of acute lobar pneumonia in an otherwise healthy young man; ending in recovery. Acidosis was found. 18. Paroxysmal breathlessness in a man who had signs of cardiac and renal involvement with aortic aneurysm. Exaggerated acidosis found during the attack.

19. **Congenital Myotonia; Thomsen's Disease.**—Of a family of eight children examined by Johnson and Marshall, four were found to be affected with Thomsen's disease. It was possible to investigate three of these carefully. They found the physical signs of the nervous system were normal; that the muscles in all three cases were larger than normal, but the actual strength of contraction and ability to maintain that contraction for any length of time were below normal. The myotonic contraction did not occur in reflex action. The duration of the local contraction produced in a muscle by mechanical stimulation varied with the degree of force used by the percussing finger. In one case, dyspnea was easily provoked by any exertion, and this patient took an anesthetic very badly. Also, in one case the authors carried out a histologic investigation of the muscle and compared it with muscle removed from a normal living control. They find that in Thomsen's disease the muscle fibers are larger than normal, their diameter being about twice the normal size. This increase was entirely the result of increase in the number of fibrillae in each fiber. The nuclei were in proportion to the size of the fibers, that is to say, there was no relative increase. Some of the nuclei occupied a position in the substance of the sarcoplasm. The longitudinal and transverse striation of the fibers showed no variation from the normal.

In another case a series of myographic tracings were taken. There was no definite alteration in the contractions whether taken in the morning or in the evening after a day's activity. Complete immobilization of a limb for twelve hours produced exaggeration of the condition in the muscles so rested. After numerous repetitions of a movement, the action became more brisk, but the patient was always twice as slow as a normal control. Reinforcement quickened up the first movement of a series at the expense of the later ones, thus conforming to the reaction met with in the normal subject. Alterations in temperature produced no registerable effect. Ischemia and congestion both caused lengthening of the contraction. Electrical stimulation by electrodes applied to the skin showed that weak stimuli produced brisk contractions, and strong ones a prolonged spasm. With the patient anesthetized they were able to stimulate the median nerve, directly with weak faradism. Momentary stimuli produced a contraction which persisted for fifteen seconds and prolonged stimulation a contraction which lasted only eight seconds. After two hypodermic injections of strychnin the muscular movements became practically normal. Johnson and Marshall suggest the use of strychnin in the treatment of this disease.

Bulletin de l'Académie de Médecine, Paris

January 5, LXXIII, No. 1, pp. 1-46

23 General Principles for Treatment of Typhoid. F. Glénard and A. Robin.
24 Importance of Roentgen Apparatus at the Front. (Nécessité d'une installation radiologique pour la chirurgie de guerre.) P. Bazy.
25 Prophylaxis of Typhus and Relapsing Fever. C. Nicolle and E. Conseil.
26 Extension Walking Apparatus for Fracture of the Femur. P. Delbet.
27 Indications for Operative Treatment of Wounds of the Orbit. (Blessures de guerre orbito-oculaires.) F. de Lapersonne.
28 *The Ultraviolet Rays in Treatment of Freezing Injuries. (Action des rayons de courtes longueurs d'ondes sur les membres congelés.) J. Pougnet.

28. **Ultraviolet Rays in Treatment of Frozen Members.**—Pougnet has applied to human tissues the discovery that the ultraviolet rays revive frost-bitten plant buds. He exposed the frozen limb for three or four minutes every two hours to the rays from a quartz mercury lamp, with a current of 110 volts and 4 amperes, the distance 25 cm. No appreciable benefit was observed with simple freezing, but when the freezing was accompanied with ulceration the effect was quite marked, healing commencing by the third to fifth day. In one case in which both feet had been frozen and were swollen, blistered and painful, the pain was arrested by the ninth or tenth sitting and the swelling subsided the sixth day. He adds that many soldiers are being sent back from the front now with badly swollen feet, and he hopes that this treatment will thus be given a thorough trial.

Presse Médicale, Paris

January 14, XXIII, No. 2, pp. 9-16

29 *Treatment of Typhoid. E. de Massary and E. Weil.
30 Adjustable Aluminum Splints. (Attelles en aluminum pour fractures et plus spécialement pour fractures compliquées.) Marion.

29. **Treatment of Typhoid.**—De Massary's experience has convinced him that the constant application of an ice bag to the abdomen answers all the purposes of cold baths, while it leaves the patient in peace. He gives a number of case his-

tories to illustrate his method and its advantages. Except for cleansing purposes, he thinks repeated baths in typhoid are not only useless but harmful. To keep the patient absolutely quiet and supply fluids in abundance are the main indications, supplemented by the continuous chilling of the abdomen. For this he covers the abdomen with a thick layer of talcum powder and over this a thin flannel. On this is placed a large bag of ice, not filled full, as its weight must not be heavy nor even enough to cause discomfort. The air is carefully expelled from the ice bag, so it will be limp and fit to the surface below. The whole is kept in place with a folded sheet; a bandage is apt to roll up and slip. If the skin shows purple anywhere, the ice should be suspended for a few hours. He has been using this treatment for years and has had but one eschar, and then it was only superficial. The bag does not need filling oftener than every two and a half hours.

The patient is encouraged to drink often so he gets up finally to 4 or 5 liters, including 2 or 3 liters of boiled milk flavored with coffee, tea or alcohol. After each cup, the patient rinses his mouth with an alkaline fluid and swallows a mouthful. Tea and other infusions flavored with alcohol in some form make up the copious intake of fluids. This keeps the salivary glands and kidneys working and thus wards off parotitis and other complications. The injury from lack of fluids is shown in the cases of soldiers sent back from the front with typhoid. They are unable to get much to drink on the journey, and suppurative parotitis developed in three such cases recently in his service. He has the tongue, gums and pharynx cleaned regularly with a mixture of equal parts of glycerin and Vichy water, and a few drops of camphorated oil are placed in each nostril. He keeps up the refrigeration of the abdomen until the temperature has been normal for two days. He declares that it is the best possible means to combat the ulcerative enteritis of typhoid, while it acts also on the septicemia by chilling the blood. Experiments have shown that the blood is chilled in this way as effectually as when the ice bag is applied to the heart region. His mortality in forty-six cases in three years has been 4.3 per cent. Among the soldiers, received mostly under unfavorable conditions, the mortality has been higher, bringing the total up to 8.5 per cent. of 140 cases.

Beiträge zur klinischen Chirurgie, Tübingen

XCIV, No. 1, pp. 1-224. Last indexed February 13, p. 623

31 Traumatic Pseudo-Aneurysm. Wieting Pasha and Orhan Bey.
32 Entire Scalp Torn Off; One Hundred and Eleventh Case on Record. R. Müller.
33 Closure of Extensive Defect in Abdominal Wall; Three Cases. (Verschluss von Bauchwanddefekten.) C. Goebel.
34 Recurring Umbilical Colic in Children. H. Graff.
35 Diffuse Perforation Peritonitis. W. Kotzenberg.
36 Peritoneal Pseudomyxoma. Loth.
37 Mesenteric Cysts. Kayser.
38 Diverticulitis and Sigmoiditis; Eleven Cases. P. Sudeck.
39 Syphilitic Stricture in the Rectum; Seventeen Cases. Schulte-Tigges.
40 Fibroma in Kidney Region Casting Roentgen Shadow; Two Cases. Orhan Bey.
41 Spontaneous Crumbling of Bladder Calculi; Three Cases. (Selbstzertrümmerung von Blasensteinen.) R. Klauser.
42 Changes in the Bone Stumps after Amputations. W. Meinshausen.
43 Methods of Fixation of Fractured Bones and Pseudarthrosis. Loth.
44 Nail Extension in Treatment of Fracture of the Fingers. W. Burk.
45 Dislocation of Semilunar Bone with Fracture of Cuneiform. F. Oehlecker.
46 Isolated Disease of the Lunar Bone from Standpoint of Industrial Insurance; Twenty Cases. G. Becker.
47 Accidents with Overstretching of Elbow and Wrist. (Ueber Zerrungskrankheiten am Ellbogen und Handgelenk.) H. Petersen.

Berliner klinische Wochenschrift

January 4, LII, No. 1, pp. 1-24

48 *The War and the Medical Profession. (Der Krieg und die Aerzte.) M. Kirchner.
49 History of Venereal Diseases. (Geschlechtsleben und Geschlechtskrankheiten in den Heeren, im Kriege und Frieden.) K. Touton. Concluded in No. 3.
50 The Field Hospital. (Ueber truppenärztliche Erfahrungen in der Schlacht.) Kruger-Franke.
51 *Acute Leukemia. (Zur Differentialdiagnose zwischen Sepsis und akuter Leukämie.) H. Hirschfeld and L. Dünner.
52 *Traumatic Pneumonia. (Ueber dyspnoische Kontusionspneumonie.) Westenhöfer.
53 *Vaccination against Chicken-Pox. (Technik der Schutzimpfung gegen Varicellen.) C. A. Kling.
54 Luetin Reaction in Diagnosis of General Paresis and Tabes. (Noguchi's Luetinreaktion mit bes. Berücksichtigung der Spätlues des Centralnervensystems.) V. Kafka.

January 11, No. 2, pp. 25-44

55 *Effect of Physical Exertion on the Heart of the Soldiers at the Front. (Leichte Herzveränderungen bei Kriegsteilnehmern.) A. Magnus-Levy.
56 *Abnormal Elimination of Calcium in Children's Urine. H. Kleinschmidt.
57 *Familial Occurrence of Friedreich's Ataxia, Myxedema and Dwarf Growth. M. Rothmann.
58 Varnish as Aid in Dressing Wounds. (Zur Beurteilung von Harzlösungen für Verbände.) H. Wolff.

48. **Physicians and the War.**—Kirchner compares the work and achievements of the medical corps now with those of former wars, declaring that such a comparison shows better than anything else the vast progress made in recent years in the medical sciences. The latest achievement is the systematic effort from the very first to treat the wounded in such a way that the crippling thereafter will be the least possible. Preservation of the earning capacity is in the mind of the surgeon tending each wounded man, and this principle is carried through in the convalescent homes, orthopedic institutions and training schools later. The specialization in practice previous to the war brought hardships at first, as certain specialists were comparatively helpless outside of their particular field. The appointment of consultants in internal medicine, etc., soon remedied this, but the experiences during this war, he thinks, will tend to impress on physicians the advantage of all-around training instead of intense specialization.

51. **Differential Diagnosis of Sepsis and Acute Leukemia.**—In the case reported, a man of 29 suddenly developed fever, chills and pains in the chest and abdomen. In the course of three weeks the symptoms partially subsided, but the headache persisted, with a temperature of 39.4 C. and pulse 128; leukocytes 4,000; but no edema nor enlargement of glands. Finally the gums began to bleed; a necrotic patch developed and the blood count then showed only 400 leukocytes. The temperature rose, while the red cells dropped to 1,700,000, and the man died in less than six weeks from the first symptoms. Necropsy showed intense proliferation of myeloblasts, although they had not poured out into the circulating blood. No bacteria were found in the blood or organs, not even in the necrotic patch in the gums.

52. **Pneumonia After Contusion.**—The claim for an indemnity was based on the development of fatal pneumonia soon after a contusion of the right chest. The pneumonic process was localized mainly in the left lung. The exhumed cadaver showed that the left lung had long been bound down by adhesions and its functioning was thus much impaired, and it was not equal to the task thrown on it by the accident to the other side of the chest, breaking the ribs and causing the man to spare that lung as much as possible. The experts therefore agreed that in all probability the pneumonia would not have developed if the trauma had not occurred.

53. **Vaccination Against Chicken-Pox.**—Kling points out several minor points in technic which may explain Handrick's failure in his attempts to stamp out varicella in an institution by vaccination (mentioned in these columns January 16, p. 284). Kling's success in this line he ascribes to the large number of inoculations made, always six or seven, and to the use of the lancet in making the scratches instead of injecting the virus with a needle. In Kling's service 73 per cent. of 108 children not vaccinated developed varicella, while only 23 developed it among the 135 vaccinated, and in all but 10 the eruption was restricted to the vicinity of the vaccination field.

55. **Slight Changes Evident in the Heart on Return from the Seat of War.**—Levy comments on the great change in the hospitals at Berlin from the cases of patients formerly encountered, most of them with chronic diseases, to the present patients, the hosts of vigorous young men. Even in these strong and sturdy bodies, however, he frequently encountered symptoms such as are observed only with slight

mitral insufficiency, with or without a slight tendency to stenosis. It is possible that in some of them there may have been an old slight spark of valvular disease which was fanned alight by the physical exertions of the campaign, but he thinks this explanation can apply to only a small proportion. Brugsch suggests that these heart changes are of infectious nature, which assumption would explain also the polyneuritis or fever sometimes observed with them, but Levy objects to this in that even with the mildest infectious endocarditis the course is not so free from complications as in the cases he is discussing. The most plausible explanation is that the heart is simply suffering from the continuous physical overexertion from the marching without adequate periods for rest and sleep. This overexertion kept up for weeks and months, when the troops are all the time on the march, exhausts the men, so that in some the nervous system becomes unstable and, like children, they respond with fever to slight causes.

56. **Abnormal Elimination of Calcium in Children's Urine.**—Kleinschmidt remarks that children sometimes have a milky, turbid urine with a white sediment consisting of calcium carbonate and phosphate. The total elimination of calcium, however, is not increased, as the usual proportion in the stools is lower to balance the increase in the urine. The pellicle that forms on such urine suggests that colloids in the urine cause the turbidity. Adults sometimes have as much calcium sediment in the urine, but the urine is not turbid. The metabolic findings and the appearance and subsidence of the calcium salts in the urine in two typical cases described in detail, testify to the fact that the phosphaturia is of nervous origin. The children presenting this condition are always those with unstable nervous systems, usually an inherited neuropathic taint. Restless sleep or sleeplessness, headache, pallor, sweats, pruritus, abdominal pain, diarrhea and hysteric or epileptic attacks are common. The most convincing proof of the nervous origin of the calcariuria is the prompt way in which it subsides, as a rule, after change of scene, while dieting, etc., may not influence it at all.

57. **Familial Ataxia and Myxedema.**—Rothmann relates that a girl of 15 had curvature of the spine, ataxia and talipes cavus. The father and three sisters are normal but a brother of 18 has myxedema and talipes cavus and never grew taller after the age of 10. The mother developed myxedema after the menopause. The history of this family seems to indicate that there must be some connection between the defective functioning of the thyroid, causing the myxedema and the dwarf growth, and the hypoplasia of the central nervous system responsible for the Friedreich's ataxia—all of which are manifestations of perverted functioning in the internal secretion system. The combination of acromegaly and syringomyelia, cases of which Petren has published, confirm this connection between certain affections of the nervous system and the internal secretions. Rothmann treated the mother and son mentioned above with thyroid tablets, and the myxedema retrogressed considerably, while the son grew 2 cm. in height in six weeks, down appeared in the axillae, the childish treble voice became deeper, and he lost nearly 4 kgm. of his proportional excessive weight. This benefit under thyroid treatment confirms the assumption that ascribes the dwarf growth and infantilism to hypothyroidism. The girl with ataxia was given the thyroid treatment, too, but no positive benefit was apparent.

Correspondenz-Blatt für Schweizer Aerzte, Basel

December 5, XLIV, No. 49, pp. 1521-1552

59 *Artificial Pneumothorax in a Diabetic. J. Bossart.

December 12, No. 50, pp. 1553-1584

60 Dementia Praecox Developing from Shock of Being Called to the Colors; Seventeen Cases. (Die Mobilmachung als krankheitsauslosendes Trauma bei Dementia praecox.) J. Jorger.

61 The Voice and Its Training. (Stimme und Stimmbildung.) F. Diebold. Commenced in No. 49.

December 19, No. 51, pp. 1585-1644

62 *Treatment of Tuberculous Bone and Joint Disease. (L'héliothérapie des Ostéo-Arthrites tuberculeuses.) A. Rollier. (Wahl der operativen oder der konservativen, speziell der Sonnen-Behandlung, bei der Knochen- und Gelenktuberkulose.) J. Kopp.

December 26, No. 52, pp. 1645-1676

63 *Functional Examination of the Kidneys. (L'examen fonctionel des reins.) L. Michaud.

64 Conditions in which Alone Hypophysis Extract Should Be Given Obstetric Cases. (Vorbedingungen zur Anwendung der Hypophysenextrakte in der Geburtshilfe.) S. Stocker.

59. **Artificial Pneumothorax in a Diabetic.**—A man of 55 had had mild diabetes for seventeen years, and during the last year signs of progressive pulmonary tuberculosis appeared, with albumin in the urine. He became very weak and, as a last resort, an artificial pneumothorax was induced on one side although there were evidently foci in both lungs. As the gas was injected it was evident that there were adhesions between the sheets of the pleura, but these stretched or tore under the positive pressure of the gas so that the pneumothorax could be properly concluded and maintained. Marked improvement followed; the fever subsided, the albumin was only 0.1 per thousand and sugar only 0.7 per cent. and the diazo reaction became negative. Bossart adds that in all but three of his forty-seven cases requiring artificial pneumothorax, the gas had to be injected under considerable positive pressure. He does not think there is much danger of air embolism even when there are tough connective tissue adhesions. They resist the pressure from the gas while there is no danger with the purely fibrinous adhesions which tear at once.

62. **Treatment of Bone and Joint Tuberculosis.**—This entire number of the *Corr.-Blatt* is devoted to the discussion of this subject which took place at the annual meeting of the Swiss Surgical Association a few months ago. Rollier of Leysin reported his results with what he calls helio-alpine treatment applied in 2,000 cases of tuberculous processes in bones and joints in the last ten years. He declares that, with his method, bone and joint tuberculosis of all forms and degrees and at all ages can be cured. His leading principles are that these lesions, as well as visceral and glandular tuberculosis, are not a local process but a general disease, and that the skin is an organ for absorption as well as for other functions. Exposure to the sunlight has thus a microbicidal action, but also an oxidizing, a reducing and an analgesic action while it promotes the development of fibrous tissue and modifies the medium. With Pott's disease, keeping the patient lying prone develops the muscles of the chest, back and trunk throughout, while it tends to correct the gibbosity by the exaggeration of the physiologic lordosis. The exposure of the uncovered back to the sunlight heals up the sources of suppuration. A complete cure with restoration of function is possible in nearly all the cases in which formerly we would have been well content with healing leaving a stiff joint. He has discarded plaster casts entirely and uses only apparatus for extension which facilitate the constant development of the muscles. One of the greatest advantages of heliotherapy, he adds, is that the cold abscesses heal without opening outward. Among his 158 cases of hip-joint disease, 125 were completely cured, with restoration of function in 102. In the 120 knee cases, 78 of the 106 cured cases have had function restored. In the 198 cases of Pott's disease, 171 are cured and 18 improved.

He regards his labor colony as an important factor in the result in some cases. This is an institution in which baskets and wicker chairs are made, the work done out of doors and the convalescents remunerated for their work. They are thus able to pay their way in part or in full and are not obliged to hurry away to support themselves before their cure is complete. He also has a farm colony where convalescents may aid in the raising of stock and bees, which has, in connection, a dairy and hot-houses for vegetables. These farm or greenhouse colonies could be founded anywhere, and they provide ideal conditions for those convalescing from tuberculosis while training them in scientific farming so that they can find employment later without returning to city life. He would like to see such institutions run by the state as subsidiary to tuberculosis heliotherapy institutions, preferably in the mountains. They would return to active life, in time, many tuberculous persons now destined to become crippled and to crowd our hospitals and homes for incurables.

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Kopp said that he prefers to operate in such cases unless the trouble is in the early stages or if it is too late to operate. These two groups are the only ones for which he thinks heliotherapy alone is adapted. In the intermediate cases the operation and healing in a few months should be balanced against the from one to three-year course of heliotherapy. It is possible that the latter may render unexpected services as an immediate supplement to operative measures, warding off recurrence. He joins in appealing to the authorities to organize state institutions for heliotherapy in charge of a skilled surgeon who does not expect the sun to do all the work.

Kocher reported the ultimate outcome twenty and twenty-five years after operative treatment of tuberculosis of the shoulder, elbow, hip joint and knee in 436 of his cases out of a total of 728. A number have died from progress of some preexisting focus elsewhere, but the results in the others are remarkably satisfactory. All the 28 surviving shoulder cases are entirely cured with free use of the shoulder, with one exception in which the shoulder functioning is defective. Of the 44 elbow cases, the arm can be used in all but 5; in 14 the joint is almost normally movable, in 16 it is stiff. He emphasizes, as the guide to treatment, the way in which Nature heals in casting off the tuberculous products. It is particularly impressive in the cases of open and multiple local tuberculosis which have healed under heliotherapy. With operative treatment the best results were always attained when the operation had been most radical.

63. **Tests of Kidney Functioning.**—Michaud refers only to those tests which reveal the part of the kidney involved in the nephritis. He tabulates his own findings in 110 cases and endorses Widal's classification of cases of nephritis into those with retention of salt in the blood and those with retention of nitrogenous substances in the blood. The retention of salt can be detected by regular weighing of the patient. A sudden increase of 1 kilogram in weight in nephritis corresponds to retention of 5 or 6 gm. of chlorids as a rule. Retention of nitrogen is revealed by regular examination of the proportion of nitrogen in the urine and of urea in the blood. Widal claims that the determination of the urea in the blood is more important clinically than determination of the proportion of albumin in the urine. The attempts to distinguish between glomerular and vascular nephritis have not given conclusive or instructive results, while classification of nephritis with high blood pressure and retention of chlorids or with retention of both salt and nitrogen, etc., points the way to treatment, as we thus learn exactly what the kidneys are incapable of doing.

Deutsches Archiv für klinische Medizin, Leipzig

CXVII, No. 1, pp. 1-77. Last indexed January 23, p. 374

65 Transitory Complete Irregularity of the Heart with the Clinical Picture of Arhythmia Perpetua. (Vorübergehende komplette Herzunregelmässigkeiten.) K. Fahrenkamp.
66 *Hemoglobinuria Induced by Walking. (Marschhämoglobinurie.) O. Porges and R. Strisower.
67 The Intramural Nerve Supply of the Heart. (Der intramurale Nervenapparat des Herzens.) W. Glaser.
68 *Cell Inclusion Bodies of Döhle. (Leukocyteneinschlüsse.) H. Rehder.
69 The Second Wave of the Venous Pulse. (Zur Genese der zweiten Hauptwelle des Venenpulses.) R. Friberger.

66. **Hemoglobinuria Induced by Walking.**—There are several forms of paroxysmal hemoglobinuria, among which that caused by walking is the least known. Hemoglobinuria induced by cold is not very rare. The patients are generally syphilitics with vasomotor disturbances and attacks of chills, fever and prostration of moderate degree, with the hemoglobinuria and hemoglobinemia. Hemolytic substances are found in the serum that act only at low temperatures. The tendency may persist for years. Hemoglobinuria may also be caused by great muscular exertion, but only one case of this kind has been observed so far. The patient was not syphilitic. During the attack there were chills, fever, severe prostration, tendency to hemorrhage and degenerative paralyses of the muscles. There was hemoglobinemia but no hemolytic substances were detected in the serum.

The form discussed in this paper, hemoglobinuria brought on by marching, occurs in young persons with unstable vasomotor systems. The general condition is not affected during the attack; no fever, no complications. The prognosis is good. It disappears after a few months without special treatment. The attack is brought on by walking, more quickly by walking in a lordotic position. Hemoglobinemia and destruction of leukocytes are demonstrable, but no hemolysins could be found in the serum. Porges and Strisower think it is caused by an abnormal vasomotor reflex called forth by walking in a lordotic position. This acts on the spleen in such a way that an excessive number of erythrocytes are destroyed. The blood thus becomes flooded with hemoglobin and the limit of tolerance of the liver for hemoglobin is exceeded. Hemoglobinemia and hemoglobinuria result.

68. **Cell Inclusion Bodies.**—Döhle has described bodies found in the leukocytes that he considered pathognomonic of typhoid. They occurred in various forms, large and small round bodies, long bodies resembling bacteria, spirals and bodies resembling spirochetes. Döhle designated them "spirochetes," but as this would be apt to cause confusion, Rehder proposes the name "trypochetes." The views expressed with regard to these bodies by other writers since have shown entire lack of agreement. Some authors hold that they are found only in scarlet fever and others that they are so common as to be almost normal, or at least that they are present in persons after recovery from a great variety of diseases. In order to settle the question if possible, Rehder made examinations of over 1,200 blood smears from over 200 patients. He thinks the confusion is due to the fact that some observers counted everything as inclusion bodies, even the smallest specks seen in the leukocytes, while others counted only the typical trypochetes. He classes the round and long formations as atypical inclusions, and the spirals and trypochetes as typical inclusions. He found typical inclusions in twenty-four out of thirty-nine cases of scarlet fever. They were more abundant in the severe cases than in the mild ones, and during the first days of the disease than later. In a series of other eruptive diseases that might be confused with scarlet fever, he found them only very rarely, while atypical inclusions were found in a great number of infectious diseases; they were relatively most frequent in tuberculosis. This explains the conflicting findings of other writers. Rehder considers the inclusions of diagnostic value in scarlet fever. He does not attempt to explain their real nature, though he thinks they are related to the protoplasm of the leukocyte. He does not agree with Döhle who believes that they are protozoa and the cause of scarlet fever.

Deutsche medizinische Wochenschrift, Berlin

January 7, XLI, No. 2, pp. 33-60

70 Modified Bile Technic for Cultivation of Typhoid Bacilli from the Blood. (Modifikation der Gallen-Vorkultur zur Züchtung von Typhusbazillen aus Blut.) P. Schmidt.
71 Veronal in Treatment of Delirium Tremens. E. von der Porten.
72 Unreliability of Vaccine Treated with Ether. (Die Brauchbarkeit des mit Aether behandelten Kuhpockenimpfstoffes.) L. Voigt.
73 Asepsis and Amputations in the Field Hospital. E. Schultze.
74 *Suggestion and Drugs. (Ueber Fonabisit, nebst Bemerkungen über die Wirkung von Suggestivmitteln.) W. Weintraud.
75 Portable Extension Dressing. (Der transportable Streckverband.) H. Töpfer.
76 Medicated Peat as Dressing for Wounds. (Chlortorfkissen als antiseptische Verbandsstoffsparer.) C. S. Engel.
77 Sanitation in the Field. (Die Beseitigung und Desinfektion der Abfallstoffe im Felde.) F. Croner.
78 Experiences of a Medical Missionary in Interior of China. H. van Vloten. Commenced in No. 1.

74. **Suggestion and Drugs.**—Weintraud refers in particular to a proprietary formaldehyd preparation which he has been thoroughly testing. He found it harmless but never witnessed the slightest objective benefit from its use. In connection with this he discusses the psychology of patients, their dislike to have any disturbances explained as "merely a nervous trouble." It is impossible to convince them that all or part of their disturbances is merely the result of some emotional stress in the past, possibly long forgotten. The physician has to distinguish between what he calls legitimate and illegitimate pains, that is, those that can or cannot be explained by some adequate irritation at the periphery in

some connection with the spot where the pain is experienced. It wounds the patient's vanity to have the pains explained as of the illegitimate type, and it is this class which turn to quacks.

Medizinische Klinik, Berlin

January 10, XI, No. 2, pp. 29-60

79 Abdominal Wounds. (Kriegschirurgische Erfahrungen im Feldlazarett.) O. Nordmann.
80 *Tetanus. Riehl.
81 Injuries of the Eye in War. (Augenverletzungen im Kriege und ihre Behandlung.) C. Adam. Continued.
82 Tuberculous Infection and Superinfection. (Tuberkulöse Infektion und Reinfektion.) F. Hamburger.
83 *Auto-Injection of Blood. (Zur Methode der Eigenblutbehandlung.) B. Spiethoff.
84 Present Status of Abortion Problem. O. Rupp. Concluded in No. 3.
85 Is Colostrum the Unripe Secretion of an Insufficient Mammary Gland. G. Benestad.

80. **Chlorinated Lime in Prophylaxis of Tetanus.**—Riehl has been advocating for several years the use of bleaching powder for treatment of snake-bite. Calmette and Paltauf found chlorin effectual in treatment of animals injected with cobra venom in doses otherwise fatal, and Riehl got up a little case for persons exposed to snake-bite. The case contains a syringe, two needles, a measuring glass and a few 0.25 gm. tablets of chlorinated lime (bleaching powder). The measuring glass is filled with water up to the 15 gm. mark and one tablet is dissolved in it. The chlorin water thus produced is equivalent to 850 c.c. of chlorin gas in 1,000 gm. water. In case of snake-bite a tourniquet is applied to the limb above the bite and the chlorin solution is injected around the spot and into the subcutaneous tissue and muscle. The procedure has proved its usefulness in numerous instances. As chlorin destroys cobra toxin, Riehl is convinced that it will act in the same way on tetanus toxin, in addition to its familiar powerful action as a disinfectant and deodorizer. It seems thus destined to find wide use in warding off and treating tetanus. A mixture of one part chlorinated lime to nine parts bolus alba (kaolin) has proved the most convenient method of its use. It is sifted freely into wounds or blown in, powdering the whole of the wounded area thick with it. There is no pain from its application, while the wound cleans up and heals remarkably under it. The earlier it is applied, the better the effect, and Riehl urges its extensive use for all shell wounds and other contaminated wounds.

83. **Autohematherapy.**—Spiethoff's further experience has confirmed the excellent results from reinjection of the patient's own blood or serum in various skin affections, especially in eczema and itching dermatoses. (A previous communication on the subject was summarized in The Journal, July 26, 1913, p. 315.) He has never had any mishaps with his intravenous technic but he has discarded the second cannula which he advocated in his earlier report. He uses a cannula as wide as can fit into the vein, and in some cases repeats the injection daily or even twice daily, injecting up to 100 or 200 c.c. of blood each time, keeping it up sometimes for weeks. As there are no disturbances afterward, he says, the injections can be done on out-patients. He claims for this autoserotherapy or autohematherapy all that can be obtained from simple serotherapy under any conditions, while the advantages of freedom from danger of anaphylaxis and of contracting disease from another person as well as the saving of time, are important points in its favor. He explains the result as due to a modification of the reaction of the skin to irritation from any source. No case-histories are given here.

Monatsschrift für Kinderheilkunde, Berlin

XIII, No. 6, pp. 245-296

86 Two Cases of Imbecility in Late Infancy with Transient Apraxia of One Hand. (Zwei Falle von Verblödung im späteren Säuglingsalter mit vorübergehenden Halbseitenerscheinungen.) K. Tergast.
87 Case of Traumatic Bulbar Paralysis in Child of Five. F. Erbsen.
88 Gravity of Secondary Infection in Syphilitic Rhinitis Neonatorum. (Entstehung des dritten Stadiums der Rhinitis luetica Neonatorum.) E. Koch.
89 Electrical Demonstration of Spasmophilia in Cases of So-Called Initial Convulsions in Children. (Initialkrämpfe älterer Kinder.) H. Gebhardt.
90 *Calcium Phosphate in Treatment of Rachitis. L. Frank and E. Schloss.
91 *Treatment of Spasmophilia with Phosphorized Cod Liver Oil and Calcium Phosphate. E. Schloss.

90. **Cod Liver Oil and Calcium Phosphate in Treatment of Rachitis.**—This is Schloss and Frank's seventh communication on the treatment of rickets since early in 1913, publishing the favorable effect in rickets of treatment with cod liver oil and calcium phosphate. They have already reported fifty-four metabolism experiments showing that this method of treatment is justified in general practice. But as this treatment seems to be in contradiction to the generally accepted theories with regard to rickets, it was deemed advisable to take up still further experiments to exclude any doubt. These experiments were designed to show the permanency of the good effects obtained. Thus seventy-eight further experiments are described, with tables and weight curves. The medication was given for at least a week before the metabolism experiments were made, to be sure that the metabolism had become adapted to the new conditions. Further investigations were made at regular intervals to show the constancy of the effect. The experiments extended over two or three months for each child and the findings in five-day periods are given for seventy-eight series of investigations. Children were selected in whom the rickets had begun early and made marked progress, except one in whom rickets had just manifested itself, and the treatment was given for prophylactic purposes. The cod liver oil and tricalcium phosphate were given in the form of an emulsion. (See following abstract for formula.) The experiments show that the treatment in the earlier as well as in the later stages of rickets brings about marked improvement in the calcium and phosphorus balance. The effect does not disappear on long continued use of the medication but rather seems to increase. After cessation of the treatment, the balance of the bone-forming minerals continues better than in the preliminary period, which is a sign of the permanency of the effect of this treatment. It is also manifested clinically by disappearance of the softness of the bones.

91. **Treatment of Spasmophilia with Cod Liver Oil and Calcium Phosphate.**—Schloss used this treatment, advocated above, in spasmophilia also. His material is very small—only 4 cases—but in all these cases the symptoms, the spasm of the larynx, Chvostek's sign and increased electrical excitability, disappeared permanently after the administration of 10 gm. cod liver oil and 1 gm. tricalcium phosphate. He thinks that calcium phosphate is to be preferred to calcium chlorid, which has been recommended by some, because the chlorid, which must be given in large doses, has certain bad effects on the child, while phosphorus has an exceptionally good effect in nervous complaints. The prescription calls for 10 gm. calcii phosphoric. tribasic. puriss. in 100 gm. ol. jecor. asell. The dose is 5 gm. twice a day, shaking well before using.

Münchener medizinische Wochenschrift, Munich

January 5, LXII, No. 1, pp. 1-40

92 *Signs of Incipient Heart Weakness. (Klinische Zeichen beginnender Herzschwache.) F. Moritz.
93 Deviation of Complement with Small-Pox. (Komplementbindung bei Variola.) A. v. Konschegg.
94 *Blocking the Gasserian Ganglion for Neuralgia. (Die Heilung hartnackiger Trigeminusneuralgien durch Injektion von Alkohol ins Ganglion Gasseri.) G. Hirschel.
95 Reform in High School Curriculum. (Der biologische Unterricht an den bayerischen Gymnasien und die neue Schulordnung.) F. Crämer.
96 Experimental Research on Action of Magnesium Sulphate in Tetanus. (Wesen und Aussicht der Tetanustherapie mit Magnesiumsulfat.) W. Straub.
97 Typical Fractures of the Toes. (Typische Bruchlinien bei Quetschungsbrüchen der grossen Zehe und des zugehörigen Mittelfussknochens, nachgewiesen an Friedensverletzungen und Seekriegsunfallen der Marine.) M. zur Verth.
98 *Wire Extension from the Heel. (Zur Klappschen Drahtextension am Kalkaneus.) P. Burger.
99 *Treatment of Tetanus. R. Schneider.

100 Fenestrated Plaster Casts. (Zur Frage des gefensterten Gipsverbandes und der Reinhaltung desselben.) M. Kahleyss.
101 Certificates as to Invalidism Among the Troops. (Aus der Gutachtertatigkeit des Arztes bei Ersatztruppenteilen.) G. Besold.
102 *Arrest of Septic Hemorrhages after Injection of Fresh Human Serum; Two Cases. H. Kronheimer.

92. **Clinical Signs of Incipient Weakness of the Heart.**—Moritz comments on the fact that the symptoms noticed with incipient weakness of the heart can be caused by vasomotor influences, and hence it is not easy to ascertain the exact share of the heart in enlargement of the liver, in edema and in albuminuria, for example. There is scarcely a single symptom which testifies unmistakably to weakness of the heart; it is only by estimating the disturbances as a whole that it is possible to exclude other causes, especially the "merely nervous" disturbances. The pulse is one function of the heart, but it is not a measure of its force until the heart has reached the limit of its powers. Even with insufficient heart action, the arterial blood pressure may be normal or above. An abnormally high blood pressure is a sign merely that the heart is being called on for an extra amount of work, and hence measures are needed to reduce its task to prevent its getting worn out. The venous blood pressure is more instructive; abnormally high pressure in the ulnar vein indicates stasis at this point. The test is applied with the patient reclining; one leg is held up in the air and the effort of doing this induces an abnormally high pressure in the ulnar vein if the pumping force of the heart is below par.

Gradual acceleration of the pulse at rest is an important sign of encroaching weakness of the heart, as also acceleration persisting after physical exercise. He tests this by taking the pulse, reclining, and then again, reclining, after a series of ten exercises in bending the knees. In less than two minutes afterward the accelerated pulse has dropped back to normal when the heart is sound, but it keeps fast if the heart has begun to weaken. The pulse is still fast if examined while the patient is asleep that night.

Moritz has found that the average heart beat during sleep at night is 57, averaging about 20 per cent. less than during bed rest while awake. Even a sound heart shows the effect at night of considerable exercise, such as bicycling, during the day; the pulse is higher than under other conditions. When even a sound heart shows such an effect, the effect on a weakened heart must be correspondingly greater. When the acceleration of the pulse is of purely nervous origin it usually subsides during sleep, but acceleration from cardiac insufficiency keeps up proportionally, even during sleep at night.

He has encountered many instances of overexertion of the heart among the troops at the front. In three cases the heart sounds were pure and the organ was not enlarged but the pulse in repose was 96, 108 or 132, the only objective findings to explain the oppression in the chest, the dyspnea or the extreme exhaustion observed. Abnormal readiness to fatigue or exhaustion may be the first sign of the heart's not being quite up to par. Another sign is a tendency to yawn during exertion. The connection of various disturbances with preceding exercise speaks against a nervous origin for them. A feeling of suffocation may sometimes occur from psychic influences alone; exercise relieves it while exercise has a tendency to aggravate dyspnea from heart weakness, anemia or respiratory trouble.

Cardiac asthma coming on at night with coughing and copious thin and foamy sputum is a mild form of edema of the lungs. A common form of cardiac dyspnea is that which comes on as the individual drops to sleep. This may occur repeatedly, especially when the arterial blood pressure is high. Contracted kidney is frequently encountered under these circumstances. The discovery of hypertonicity with these disturbances points to a periodical nocturnal weakness of the heart. Such patients are mostly elderly. The heart, apparently normal at other times, reveals its latent weakness as sleep puts an end to sense stimuli which aid to maintain tonicity during the waking hours. Recognition of this early sign of insufficiency permits proper treatment—camphor or morphin for temporary aid, followed by a mild course of digitalis, supplemented possibly by venesection. Another early sign, and perhaps long the only one, is a gallop rhythm. This also calls for digitalis, as it indicates, he says, stagnation of blood in the left auricle as the ventricle contractions grow weaker. The presystolic gallop is the more common, and the blood pressure with it is abnormally high.

94. **Injection of Alcohol Into the Gasserian Ganglion.**—Hirschel reports that there has been no recurrence of the extremely severe trigeminal neuralgia in the seven cases in which he blocked the gasserian ganglion by injection of alcohol. In two there was only slight improvement at first but gradually the cure became complete.

98. **Wire Extension from the Heel.**—Burger has applied in fourteen cases Klapp's method of suspending a weight from a wire passed through the heel. The ends of the wire are brought through a board below, the holes far enough apart to hold the ends of the wire parallel as they pass down the sides of the heel. He regards this as a simple and effectual method for extension. Some of the patients did not complain of any painfulness from it, and the others did not mind the slight pain at first.

99. **Tetanus.**—Schneider states that none recovered of the tetanus patients treated with subcutaneous injection of antitetanus serum while three of the nine given intravenous injections were saved out of a total of twenty-two cases. The wounded are apt to ascribe to their wound the first faint symptoms of tetanus, so the physician must make special inquiry for slight "rheumatic" pains and stiffness in the wounded limb, fatigue in chewing, pains around the mouth and brief cramps in the chest muscles, like a "stitch in the side."

102. **Arrest of Hemorrhages in Sepsis.**—In Kronheimer's two cases, a tendency to recurring severe parenchymatous hemorrhages, accompanying extensive septic wounds, was arrested by subcutaneous injection of 2.5 c.c. of fresh human serum repeated with twice the dose three days later in one case. In the other, 5 c.c. was injected each time. The hemorrhages did not recur afterward, although the first patient's history suggested a tendency to hemophilia.

Wiener klinische Wochenschrift, Vienna

January 7, XXVIII, No. 1, pp. 1-28

103 *Failures in Operative Treatment of Exophthalmic Goiter. (Zur Frage therapeutischer Misserfolge bei Morbus Basedowii.) H. v. Haberer. Concluded in No. 2.
104 Dysentery. H. Salomon and E. Wiener.
105 Extract of Blood Platelets in Treatment of Uncontrollable Hemorrhage from the Lungs. (Koagulen bei unstillbarer Lungenblutung.) H. Riedl.
106 Estimation of Past Intervals of Time Almost Always Shortens Them. (Zur Schätzung der verflossenen Zeit und ihre Rolle bei der Aufnahme von Krankengeschichten.) J. Kollarits.

103. **Treatment of Exophthalmic Goiter.**—Von Haberer's success in treating exophthalmic goiter by resection of the thymus was reported in these columns last year, July 25, 1914, p. 361, and October 3, p. 1237. The Basedow symptoms rapidly subsided and the improvement was durable in his twenty-one cases. These favorable permanent effects contrasted with those in other cases in which the thyroid alone had been resected, emphasized the important part which the thymus must have played in the Basedow syndrome. He here reports three additional cases in which the indications were apparently the same; a severe form of exophthalmic goiter was accompanied by symptoms showing disturbance in both the vagus and sympathetic nervous systems, in short, the syndrome calling for resection of the thymus. In the first case the young woman for twelve hours seemed much relieved by the resection of both thyroid and thymus as in his preceding successful series, but the next day she was restless, the pulse 160. The restlessness increased and the pulse ran up to 200, with fever and much cyanosis and the woman died the third day. There was thus the same fatal aggravation of the Basedow symptoms as sometimes follows resection of the thyroid alone, except that there had been a twelve-hour period of relief before the symptoms returned. The case seemed to upset the conception that the thymus

is responsible for the major part of the symptoms, as he had excised a large piece of the thymus. Necropsy, however, steadied this conception on even a more solid base, as it showed that although a piece of the thymus nearly as large as an ordinary thymus had been resected, yet this was only a small fraction of the thymus in this case. What was left weighed 70 gm. The article is to be concluded in No. 2.

Zentralblatt für Gynäkologie, Leipzig

January 9, XXXIX, No. 2, pp. 17-32

107 Sins Against Asepsis in Operating. A. Sippel.

Zentralblatt für innere Medizin, Leipzig

January 9, XXXVI, No. 2, pp. 17-32

108 Transmission of Disease by Insects. (Verbreitung von Seuchen durch Insekten im Kriege.) J. Versluys.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 7, XXXVI, No. 2, pp. 17-32

109 *Loss of Pharmacologic Power of Atropin Solutions on Standing. I. Simon.

January 10, No. 3, pp. 33-48

110 *Aleukemic Myelosis. II. (Le mielosi aleucemiche eritroblastiche dal punto di vista clinico.) G. Ghedini.

109. **Rapid Loss of Pharmacologic Power of Atropin.**—Simon has been experimenting on rabbits to learn how soon an aqueous solution of atropin loses its power to paralyze the vagus. He tabulates the findings in thirteen experiments, all testifying that in three days from the making of the aqueous solution not only the minimal dose that paralyzes the vagus under other conditions, but much larger doses, fail to paralyze the vagus. The minimal dose per kilogram of weight is not much larger for the rabbit than for man. He advises druggists to keep on hand vials with a capacity of 10 c.c. but containing 0.01 gm. atropin sulphate. In another vial 10 c.c. of water is kept, and both vials are sterilized. Then by pouring the water on the atropin, the sterile 1 per thousand solution is ready in a minute.

110. **Aleukemic Myelosis.**—This is the second instalment of Ghedini's study of what he calls erythroblast aleukemic myelosis. The spleen is enlarged in every case, but there may be abnormally large numbers of red blood cells, with or without subleukemia, or there may be abnormally small numbers of blood corpuscles with or without chronic jaundice, sometimes associated with cirrhosis of the liver. These combinations form five different types of aleukemic myelosis. He discusses each in turn, theorizing to explain the phenomena observed. They are all links of the same chain, he thinks, all traceable to a single fundamental cause acting on a predisposition, congenital or acquired, on the part of the myeloerythroblast apparatus, analogous to the territorial predisposition we style the lymphatic diathesis.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

II, No. 20, pp. 1569-1652

111 *The Tonus Innervation of the Striated Muscles. (De beteekenis der tonische innervatie voor de functie der dwarsgestreepte spieren.) S. de Boer.
112 *Fat Embolism. (Over vetembolie.) A. Nicolai.
113 Acute Mania; Two Unusual Cases. G. C. Bolten.

No. 21, pp. 1653-1732

114 *Treatment of Varicocele by Resection of the Pampiniform Plexus. J. A. van Dijk.
115 Organic Matter in the Air in School-Rooms. (Het stofgehalte van de lucht in schoollokalen.) S. van Voorthuijsen and G. H. Leopold.
116 Treatment of Complete Fissure of the Anus. C. de Feijfer.

111. **Autonomous Innervation of the Striated Muscles.**—De Boer's article is accompanied by forty-one illustrations or diagrams showing his findings on frogs and cats.

112. **Fat Embolism.**—Nicolai discusses the literature on this subject in connection with the case of a middle-aged man who met with an accident in which one leg and several ribs were fractured. Respiration and pulse were accelerated thereafter and coma developed the second day with death the third. Necropsy revealed fat embolism as the cause of death.

114. **Treatment of Varicocele.**—Van Dijk tabulates the details of forty-eight cases of varicocele in which he resected the pampiniform plexus in treatment and reexamined the patients from one to twelve years afterward. The disturbances from the varicocele are due almost entirely to the pressure on the pampiniform plexus, and Bennet's method of resecting the entire plexus, from the external inguinal ring to the epididymis, is, he insists, the logical and effectual treatment. In case of hydrocele, the tunica proper of the testicle can be incised and turned back by Winckelmann's technic.

Russky Vrach, Petrograd

XIII, No. 29, pp. 997-1028

117 Intravenous Injections of Concentrated Solutions of Neosalvarsan. V. I. Terebinsky.
118 *The Action of Ischemia on Surgical Tuberculosis. D. L. Elkind.
119 *Injection of Liquid Petrolatum Into the Abdominal Cavity to Prevent Adhesions. S. N. Lissovskaia and I. I. Djanelidze. Commenced in No. 28.
120 *Functional Achylia of the Stomach and Pancreas. F. N. Orloff.
121 *Excrescences on the Heel Bone. (Exostoses Ossis Calcis.) E. I. Kanevshaia.
122 *Cases of Communication between Eosophagus and Air Passages. (Fistula eosophago-trachealis.) I. E. Rashb.

118. **Influence of Ischemia on Local Tuberculous Processes.**—Elkind performed eighty experiments on rabbits for the purpose of studying the effect of ligation of the renal artery on tuberculous infection of the kidney involved. A virulent culture of tubercle bacilli was injected into the parenchyma and pelvis of the left kidney. Simultaneously the left ureter was ligated in some rabbits. In others the tubercle bacilli were injected into the vein of the ear and, some time after the infection had set in, the renal artery was ligated. Those rabbits that survived the operation were killed about four months after the ligation, when the contracted kidney could no longer be palpated. The rabbits that survived the ligation of the renal artery rapidly improved and gained in weight, the temperature becoming normal. The kidneys were found studded with tubercles but the nodules had gradually shrunk, showing a proliferation of connective tissue and infiltration with lime. The tuberculous foci were found walled in with fibrous capsules of varying thickness. Thus regressive changes in the tuberculous kidney were plainly evident as the result of the artificially induced ischemia, just as occurs in the lungs after ligation of the branches of the pulmonary artery.

119. **Prophylactic Treatment of the Peritoneum Before Operations.**—Lissovskaia and Djanelidze injected camphorated oil into the abdominal cavity in cases of acute purulent and adhesive peritonitis, but without any good results. In one patient with adhesive peritonitis that had followed an appendicitis operation, 15 gm. of liquid petrolatum were injected into the abdominal cavity after the adhesions were separated. The patient felt well for about five months when the old complaints reappeared. Blue-light treatment gave some relief. Experiments with injection of liquid petrolatum into the peritoneal cavity of rabbits after the serous covering of the small intestines had been detached, proved that liquid petrolatum may remain in the body for a long time without affecting the general condition of the animals, but it causes some peritoneal irritation. Therefore liquid petrolatum can not be relied on to prevent postoperative peritoneal adhesions. The treatment of the latter must be prophylactic—absolute asepsis, careful handling of the peritoneal covering of the intestines, prevention and careful arrest of hemorrhage, etc.

120. **Functional Deficiency in Stomach and Pancreas Secretion.**—Some of the conclusions Orloff came to from his studies of twenty-eight patients with different diseases are that functional achylia of the stomach and pancreas may occur together. Also that in gastric achylia there eventually occurs a vicarious increased secretion of trypsin. In pancreatic achylia the secretion of the diastatic ferment probably suffers also. Pancreas extract in treatment for pancreatic achylia gave good results in his experience.

121. **Excrescences on the Heel Bone.**—Kanevshaia points out the frequency of exostoses on the os calcis—calcaneum

spurs—as the cause of pain in the heel. This cause should be looked for in patients suffering from varicose veins in the legs, as such patients frequently complain of circumscribed pain in the feet. In cadavers these excrescences are found in about 9 per cent. They are bilateral and occur in males more frequently than in females, but do not seem to develop before the age of 15. Those exostoses that occur in arteriosclerosis and gout are not true excrescences but are merely deposits of salts in the soft tissues. The pain is due to the crushing or fracture of the exostosis, to bursitis or derangement of the arch or to pressure of the bone growth on the soft tissues. The pain does not radiate. The most rational treatment is surgical; the bursa should be removed also. To avoid possible relapses, arch supporters should be worn even if the present flat-foot does not cause any trouble.

122. **Communication Between Esophagus and Air Passages.**—In Rashb's three cases the causes of the esophagotracheal fistula were in two cases carcinoma of the esophagus and in one trauma of the esophagus caused by a swallowed bone. The most prominent clinical symptom was severe coughing after swallowing food, especially fluids. Part of the swallowed food was expelled with the sputum. In case this symptom is not pronounced, endoscopy may help the diagnosis. The prognosis is absolutely bad, as the patients inevitably succumb to aspiration pneumonia.

Hospitalstidende, Copenhagen

December 30, LVII, No. 52, pp. 1521-1544

123 *Paraffin Mixture with Low Melting Point. V. Jensen.

January 13, LVIII, No. 2, pp. 25-56

124 *Surgical Treatment of "Medical" Nephritis. (Erfaringer om kirurgisk Behandling af de kroniske aseptiske "medicinske" Nefriter.) T. Rovsing. Commenced in No. 1.

123. **Paraffin Mixture with Low Melting Point.**—For embedding tissues, Jensen uses a mixture of two parts paraffin with a melting point at 56 C.; two parts paraffin with a melting point at 40 C., and one part spermaceti. This mixture is as transparent as pure paraffin and the melting point is about 41 C. He treats the specimen first with alcohol and then with benzin before transferring it to the melted paraffin mixture.

124. **Surgical Treatment of Chronic Aseptic Nephritis.**—In forty-six cases of chronic, aseptic "medical" nephritis Rovsing has applied nephrolysis. This is practically the same as Edebohls' decapsulation. Rovsing had published this nephrolysis method in 1895, some time before Edebohls' publications. He is much more cautious in accepting indications for it than Edebohls, and he also explains its mode of action somewhat differently. Rovsing's cases have shown that medical nephritis may be restricted to one kidney alone, and there are grounds for supposing that this is not uncommon not only with interstitial but with parenchymatous and glomerular nephritis. He urges internists to draw the urine from each kidney and examine it separately. Especially in case of hemorrhagic nephritis, this may be of vital importance as simple nephrolysis may cure parenchymatous and glomerular nephritis of one or both kidneys.

He slits the membrane proper, breaks up adhesions, and resects as much as possible of the adipose capsule if it shows fibrous degeneration. Incision of the kidney itself he denounces as dangerous and unnecessary. He comments on the comparative indifference of the internists to the etiology, diagnosis and classification of the different forms of chronic nephritis. Internists to-day, he declares, in the field of chronic nephritis are no further advanced than those of the last generation, and they have given little help to the efforts of the surgeons to cure aseptic nephritis. Among his forty-six patients, twenty were women. He excised a scrap of the kidney for examination in nearly every case.

In the thirteen cases of interstitial nephritis, perinephritis with paroxysmal pains and hematuria but no albuminuria, all the patients were clinically cured by the nephrolysis. In the majority the interval since has been over seven years. In sixteen other cases the syndrome was the same plus albuminuria, and all these patients have been cured, with two exceptions. In one patient the other kidney now calls for nephrolysis; another patient died. This latter was the only case in which the kidney proper was incised. It illustrates the danger of nephrotomy, while all the other cases in these two groups confirm the needlessness of any measures beyond the nephrolysis. The outcome of the nephrolysis confirmed the assumption that the nephritis affected only one kidney in most of the cases. It demonstrated further that simple nephrolysis not only cured the pains and hematuria but also the albuminuria. The albumin was materially reduced or disappeared entirely for a longer or a shorter time, and in the majority has not reappeared during the seven to nine years since.

Among his six cases of diffuse parenchymatous nephritis some were hemorrhagic, and in one he expected to remove the kidney, as the patient had long suffered from pains in the right kidney region. A gynecologist had diagnosed pyelonephritis, had prescribed hexamethylenamin and sent her to the hospital for nephrectomy. She improved at first but severe bladder tenesmus returned, and fibrinous clumps were passed in the urine, while the albuminuria increased. No bacteria were found in the urine. When the kidney was exposed, Rovsing contented himself with nephrolysis instead of removing the organ. The albuminuria and the pains subsided at once, but two weeks later there was a new attack. It coincided with resumption of the hexamethylenamin and when this was stopped, all disturbances ceased at once. He is convinced that the hexamethylenamin (urotropin) was responsible for all the syndrome that was not the result of the perinephritic adhesions. The drug induced albuminuria, a toxic cystitis, and desquamation of epithelium, thus setting up a vicious circle.

No benefit was apparent from the nephrolysis in four other cases of diffuse parenchymatous nephritis; but in the sixth case nephrolysis on both sides seems to have cured the patient completely after medical treatment for months had failed to relieve the bilateral nephritis with much albuminuria, and occasional hematuria. In his three cases of glomerular nephritis, it was bilateral in one case and only transient benefit was realized from the nephrolysis. In the two others only one kidney was involved and one patient has been entirely well during the seven years since the successful nephrolysis. The other patient had hemorrhages later, compelling nephrectomy, and has been in good health since this operation.

The nephrolysis did not benefit in the one case of orthostatic albuminuria in which it was applied. He now orders, in such cases, extra nourishing food, and tells the patient to lie down for one or two hours a day and never to stand long at a time. He asserts that a supporting bandage is an important aid in the cure of the wandering kidney which is the main factor in orthostatic albuminuria. As the patient stands up, the kidney becomes dislocated and albuminuria is the natural result. In one case both kidneys were loosely movable and the albuminuria and other disturbances compelled nephropexy on both sides, after which there was no further trouble.

Svenska Läkaresällskapets Handlingar, Stockholm

XL, No. 4, pp. 311-446. Last indexed January 2, p. 94

125 *Classification of Scoliosis as Aid to Treatment. (Bidrag till skoliosernas morfologi och terapi.) P. Haglund.

125. **Classification of Scoliosis as Aid to Treatment.**—This entire number is devoted to Haglund's study of the different types of scoliosis that develop from various general and local causes. It is based on 719 cases out of 771 cases since 1903 and 1,500 cases before that date, and is accompanied by 146 illustrations. His aim is to present the main features of each type of scoliosis in such a way as to facilitate clinical examination and point the way to treatment, according as the scoliosis is the result of pressure, of gravity, or of disease.

Ugeskrift for Læger, Copenhagen

December 31, LXXVI, No. 53, pp. 2215-2232

126 Colchicum in Acute Attacks of Gout. (Colchicumbehandling af det akute Anfald af ægte Gigt.) A. L. Fonss.

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CANCER OF THE BREAST*

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PHILADELPHIA

Cancer of the mammary gland is second in frequency only to carcinoma of the stomach. When a clinical diagnosis of it can be made with reasonable certainty it is oftentimes too late for a radical cure to be effected, because it has ceased to be a strictly local condition, as are all such lesions in their incipiency, but instead, has, through metastases, become a general and therefore necessarily lethal disease. A late diagnosis cannot be atoned for by a more extensive operation, as operative measures have already been carried to the farthest possible limit. Therefore our best endeavors should be enlisted in the direction of earlier diagnoses, or, better still, we should attack all lesions that are potentially malignant and remove them at a time when their hosts can safely, certainly, and quickly be cured. The presence of so many laymen to-night would seem to make it necessary to emphasize what has long been known to surgeons and pathologists, that cancer is primarily of local origin. Further, there are many in the profession, a few in high authority, who still cling to a teaching which is as archaic as it is unfortunate. Moore of London demonstrated in 1867 that cancer *begins always* as a strictly local disease. The evidence is clinical, microscopic, experimental and surgical, and no jury reviewing it can fail to find a prompt verdict. The clinical evidence alone is suggestive, indeed, well-nigh conclusive. Early in the disease a patient seems in every way to be in perfect health. They are well nourished, they have no pain, they eat, sleep, look and feel perfectly well. Could this be so if the disease were constitutional?

The microscopic evidence is conclusive as to the local nature of the affection: if one cuts through the center of a growth, and places a section under the microscope, there will be seen countless epithelial cells pathognomonic of cancer. At the periphery of the tumor such cells become fewer in number, and, just beyond its edge there are few, or none at all. Can this mean but one thing—a local neoplasm?

If a mouse is injected with cancer cells there will, in time, appear a small tumor at the identical spot where the injection or needle puncture was made. It grows slowly but steadily, and there is no tumor or swelling at any other place. The mouse seems as well as any others with which it may be placed. It eats, plays, sleeps, and behaves in every way as other mice do. Later on secondary swellings, or tumors, appear over other parts of its body, and simultaneously with them the animal loses its appetite, evidently has pain, becomes emaciated, and finally dies. Plainly the disease is now constitutional, the blood and many solid tissues being involved. But as weighty as the clinical, microscopic and experimental evidence is, the surgical is by far more convincing. If the small growth be excised, along with a fair amount of the tissue immediately adjacent thereto, so as to get beyond any outlying cancer cells, or as a layman would say, "the roots," the wound made in so doing quickly heals and that is the end of the trouble. It never returns *in loco* or elsewhere. All depends on the thoroughness of removal.

It would be interesting, if time allowed, to prove this incontestably by reviewing operative results from the time when operators were pessimistic and faint hearted, practicing only partial or incomplete removal, with the far better results secured at the present time when a judicious optimism prevails with all up-to-date surgeons, who, accordingly, institute radical procedures and usually eradicate the disease. We could show how operative results have improved not only with each decennial or quinquennial period, but, in fact, have improved year by year since Moore's epoch-making discovery. The forceful teachings of Moore and Banks of England, Billroth and Volkmann of Germany, and Gross, Halsted, Warren, Meyer, and others in America have long since been accepted without question and should be thundered from the very housetops. Every patient with early cancer of the breast, every physician consulted on account of it, should know that prompt and radical surgical treatment offers almost certain relief. If it does not follow, somebody has blundered. Usually it will be the unfortunate host, who has suffered so little inconvenience thereby as to think it trivial and refuse to seek advice. It may be the physician who prefers "to wait and see if it is malignant" before advising its removal; or, it may be the surgeon who performs an incomplete operation. Nevertheless, there *was* a time when a definite and permanent cure would have been not only possible but next to certain. Should we not, therefore, pull together and not apart?

We have said that early diagnosis and prompt surgical intervention are both necessary. Can an early clinical diagnosis always be made? No, but us
it can be done, and in doubtful instances the
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* Address before the Southern Medical Association in Richmond, Va., Nov. 11, 1914.

report after making frozen sections. This can be done in five minutes, and the action of the surgeon depends entirely on the report of the pathologist, which should be both accurate and dependable.

Every one familiar with pathologic conditions in the mammary gland knows that a vast majority of them are either malignant or potentially so. All should therefore be considered malignant until found to be benign. In patients who have reached the age of 40 or upward, the immense majority are malignant *ab initio*. But we have been too dogmatic in the past in declaring that cancer is an affection of middle or advanced life. Twenty per cent. of carcinomas of the breast occur in women under 40, and I recently encountered it in a girl of 17. Moreover, when it does occur in young women, it is relatively more fatal than in older ones. It is therefore even more necessary to act promptly.

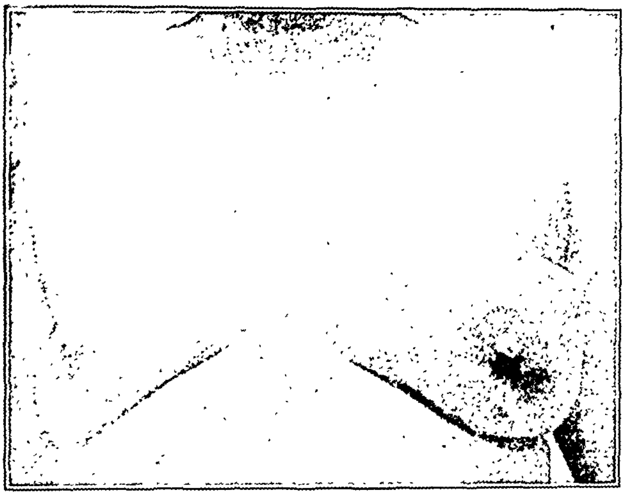

Fig. 1.—Growth clinically diagnosed as a sarcoma in a woman 47 years old. Pathologically diagnosed as either a myxoma which has undergone sarcomatous change, or benign growth.

Why is it more fatal in the young? Because their lymphatic vessels are both more numerous and patent, and hence a strictly local process soon becomes a general or disseminated one. In short, the lymphatic glands become involved at an earlier stage in the young, and when such is the case, the chances of a radical cure are about one-fourth as great as when they are not involved. Twenty-five per cent. of the patients with axillary involvement are cured by operation; 80 per cent., or more, when there is no such involvement. Could a better reason be given for prompt action, as no one can foretell when the axillary glands may become involved? They are practically always infected within a twelvemonth after the local appearance of the growth in the breast, and may be so much earlier. The unger the patient, the sooner the involvement.

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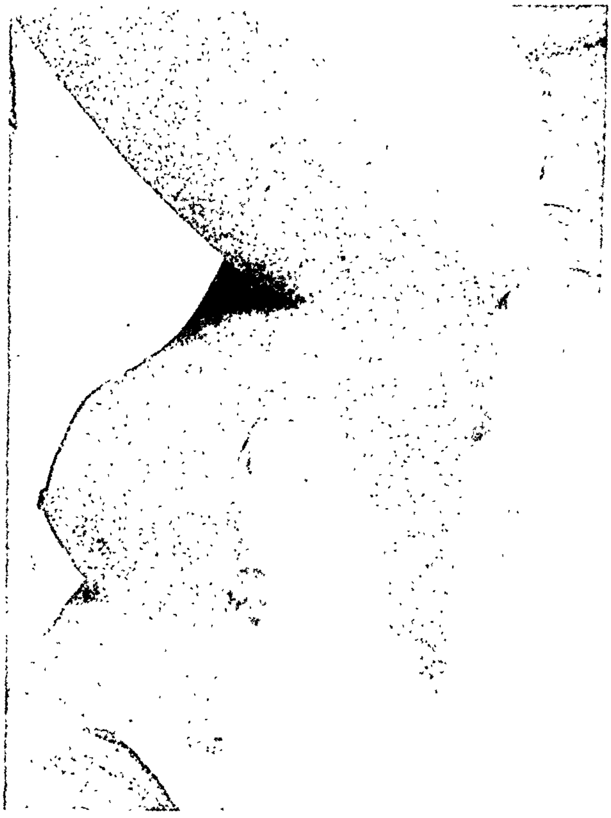

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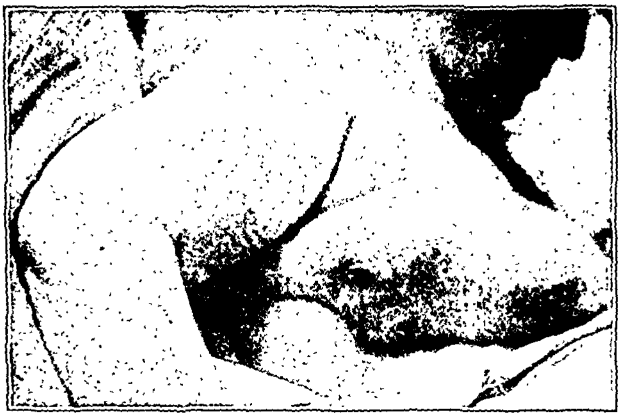

Fig. 3.—Ulcerating tumor.

TABLE 1.—DISEASES OF THE BREAST IN TWO HUNDRED CASES

	Number	Per Cent.
Carcinoma	83	41.5
Abnormal involution	67	33.5
Benign tumors	30	15
Papillary cyst adenoma	6	3
Tuberculosis	6	3
Sarcoma	5	2.5
Galactocele	3	1.5
Total	200	100

If we add the six cases of papillary cyst adenoma to the sixty-seven of abnormal involution we have seventy-three so-called benign cases and eighty-eight malignant ones in a series of two hundred. Hence they are about equally common. The potential malignancy of papillary cyst adenoma is much greater than that of abnormal involution, as the tumors in five of my six patients showed marked cancerous degeneration. In fact, I no longer consider this disease as benign. That it begins as such is true, perhaps, but it so quickly tends to assume a malignant phase that it is safe only to consider it as malignant and to treat it in the most radical manner. The same is equally true of Paget's disease. The eczema of the skin is the secondary manifestation of duct cancer and is due to the irritating discharge from within the ducts. The proof of this is found in the fact that the deeper we go, the more marked evidence we have of malignancy, whereas, if the superficial condition were the original one the reverse would be true. Thin, Raymond Johnson, Williams and others were fairly prompt to controvert the views of Sir James, but the latter's more commanding position and his forceful presentation of his case caused his view to be accepted as an ex-cathedra utterance.

How is cancer of the breast to be treated? Understanding as we now do, that it is strictly a local affection primarily, the answer should always, and without exception, be as direct and positive as language can make it. Free and early excision by the knife is the only thing to be considered, because one can never tell the extent of the disease until the lesion and surrounding tissues have been examined by sight, touch and the microscope so that the surgeon may know that his work has been rightly and thoroughly done. Hence the utter futility of caustics, radium, Roentgen rays, etc. There are conditions less pitiless and destructive in their nature in which second- and third-best remedies may be used if, through a fancied dread of a surgical operation, the patient insists on them. But cancer is not one of them, and the medical man is recreant to his trust if he does not protest against a course which means almost certain disaster. The danger of an operation at this time is, at the most, one-half of one per cent., and if performed early nearly all will result in a permanent cure. Even when cancer has been present for a year the chances of success are about equal. After more than a year's duration one-third, one-fourth or less will be cured, according to the extent of the growth, its location, the age of the patient and other circumstances. Can more reasonably be expected of any treatment for a disease that will almost certainly prove lethal in thirty-six months without treatment? Cancer is curable and its existence in the breast, or other external organs, should, from its very nature, be evident quite soon; therefore the responsibility for so many deaths (18,000 annually from cancer of the breast in the United States[1]) rests with the hesitating hosts or the equally dilatory physician who is first consulted. It is no fault of the cancer, for there is visible evidence of its presence long before it has ceased to be a local and removable enemy. But both patient and physician may answer, "Yes, I knew there was a tumor present, but did not suspect that it was serious." Lumps or tumors of the breast are always serious and presumably malignant until the contrary is established, for I have shown that of 200 of my private patients taken consecutively, 161 were either malignant or potentially so. Add to them the six cases of tuberculosis, in which it is almost as necessary to have a radical operation, and the number is increased to 167. With such melancholy facts staring one in the face, why will women and their family physicians continue to act as little children who play with fire? It passeth all understanding, yet they do. Those who act promptly are as the wise, those who are tardy as the foolish virgins. Does not the drowning person catch at anything, even straws, before going down? But the victims of early cancer have a life boat into which

Fig. 4.—Sarcoma.

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[1] There were 75,000 deaths from cancer, and it is customary to estimate that 25 per cent. approximately were due to mammary carcinomas.

report after making frozen sections. This can be done in five minutes, and the action of the surgeon depends entirely on the report of the pathologist, which should be both accurate and dependable.

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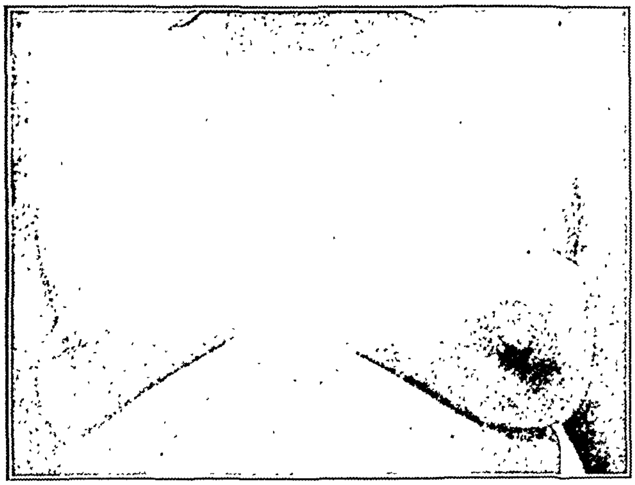

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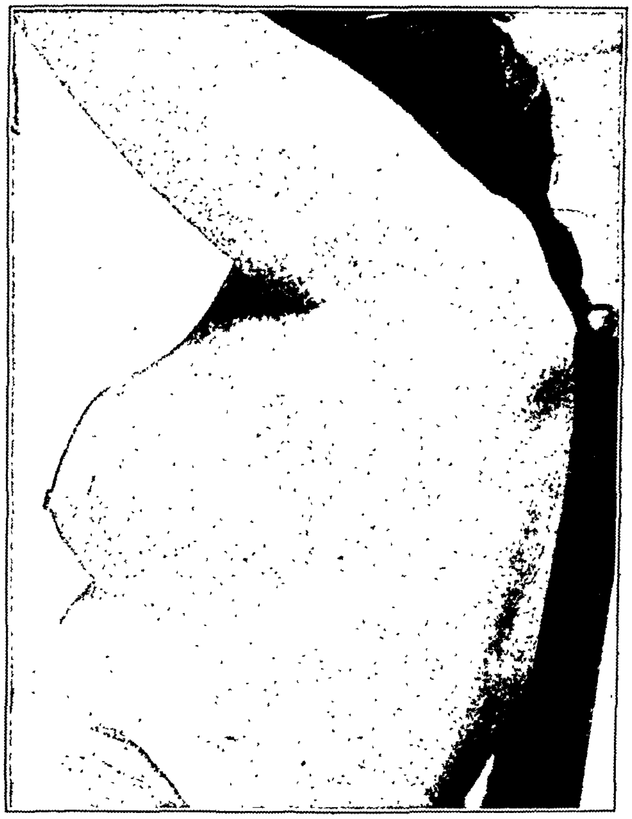

Fig. 2.—Side view of growth shown in Fig. 1.

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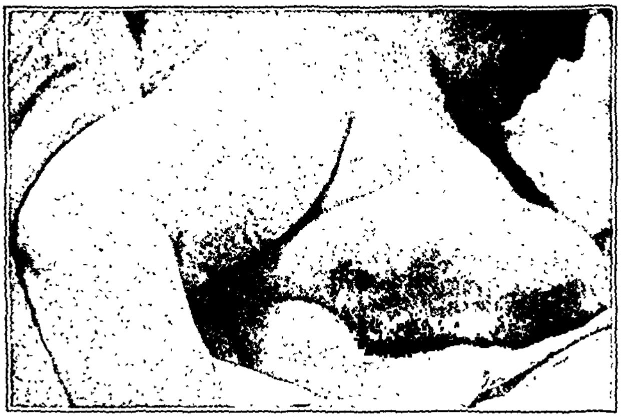

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Total	200	100

If we add the six cases of papillary cyst adenoma to the sixty-seven of abnormal involution we have seventy-three so-called benign cases and eighty-eight malignant ones in a series of two hundred. Hence they are about equally common. The potential malignancy of papillary cyst adenoma is much greater than that of abnormal involution, as the tumors in five of my six patients showed marked cancerous degeneration. In fact, I no longer consider this disease as benign. That it begins as such is true, perhaps, but it so quickly tends to assume a malignant phase that it is safe only to consider it as malignant and to treat it in the most radical manner. The same is equally true of Paget's disease. The eczema of the skin is the secondary manifestation of duct cancer and is due to the irritating discharge from within the ducts. The proof of this is found in the fact that the deeper we go, the more marked evidence we have of malignancy, whereas, if the superficial condition were the original one the reverse would be true. Thin, Raymond Johnson, Williams and others were fairly prompt to controvert the views of Sir James, but the latter's more commanding position and his forceful presentation of his case caused his view to be accepted as an ex-cathedra utterance.

How is cancer of the breast to be treated? Understanding as we now do, that it is strictly a local affection primarily, the answer should always, and without exception, be as direct and positive as language can make it. Free and early excision by the knife is the only thing to be considered, because one can never tell the extent of the disease until the lesion and surrounding tissues have been examined by sight, touch and the microscope so that the surgeon may know that his work has been rightly and thoroughly done. Hence the utter futility of caustics, radium, Roentgen rays, etc. There are conditions less pitiless and destructive in their nature in which second- and third-best remedies may be used if, through a fancied dread of a surgical operation, the patient insists on them. But cancer is not one of them, and the medical man is recreant to his trust if he does not protest against a course which means almost certain disaster. The danger of an operation at this time is, at the most, one-half of one per cent., and if performed early nearly all will result in a permanent cure. Even when cancer has been present for a year the chances of success are about equal. After more than a year's duration one-third, one-fourth or less will be cured, according to the extent of the growth, its location, the age of the patient and other circumstances. Can more reasonably be expected of any treatment for a disease that will almost certainly prove lethal in thirty-six months without treatment? *Cancer is curable and its existence in the breast*, or other external organs, should, from its very nature, be evident quite soon; therefore the responsibility for so many deaths (18,000 annually from cancer of the breast in the United States[1]) rests with the hesitating hosts or the equally dilatory physician who is first consulted. It is no fault of the cancer, for there is visible evidence of its presence long before it has ceased to be a local and removable enemy. But both patient and physician may answer, "Yes, I knew there was a tumor present, but did not suspect that it was serious." Lumps or tumors of the breast are always serious and presumably malignant until the contrary is established, for I have shown that of 200 of my private patients taken consecutively, 161 were either malignant or potentially so. Add to them the six cases of tuberculosis, in which it is almost as necessary to have a radical operation, and the number is increased to 167. With such melancholy facts staring one in the face, why will women and their family physicians continue to act as little children who play with fire? It passeth all understanding, yet they do. Those who act promptly are as the wise, those who are tardy as the foolish virgins. Does not the drowning person catch at anything, even straws, before going down? But the victims of early cancer have a life boat into which

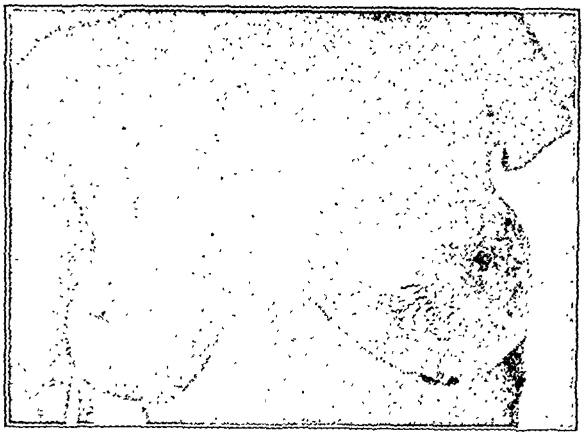

Fig. 4.—Sarcoma.

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[1] There were 75,000 deaths from cancer, and it is customary to estimate that 25 per cent. approximately were due to mammary carcinomas.

they may enter at any time, yet they sink. We must be patient with them, for the same persons have been both blind and deaf to the progress of medicine in many other directions, as they have refused to allow their children to be vaccinated, denied them antitoxin when stricken with diphtheria, declined a timely operation in appendicitis and strangulated hernia, even refusing, though abundantly able to give them everything that wealth and supposed enlightenment offers, any medical treatment at all. Education! education! education! must be given them, and it is our solemn and bounden duty to give it. They may reject our advice and run after false gods once, but a single lesson should suffice.

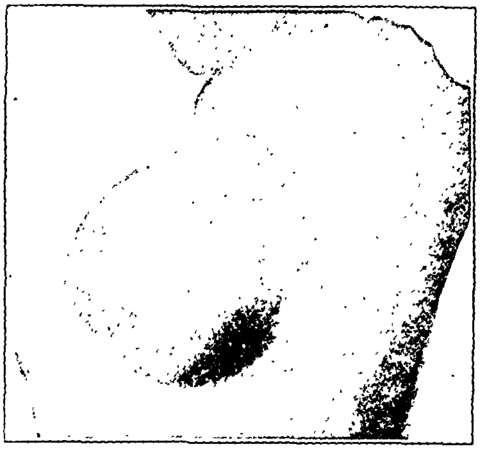

Fig. 5.—Sarcoma.

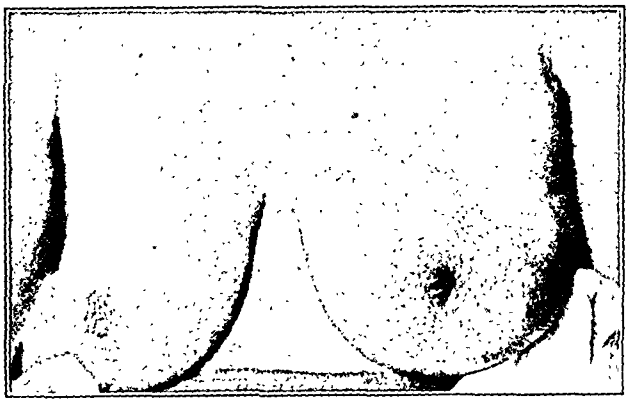

Fig. 6.—Paget's disease.

I have spoken in a general way of the benefits of early operation and the hazards of delay. Let me now be more specific and speak of results in average cases, taking them as they present themselves to surgeons for operation, some of them coming early, some fairly early, others late, and others still very late. Private patients, being more intelligent and having the ability to seek timely relief, give us much better results than are found in those whose lives are a constant struggle with adversity. Moreover, their appreciation of the dangers surrounding them keeps them in closer touch with their medical attendants; therefore far more accurate records may be kept concerning their after-history. For this reason I prefer to limit my statistics to private patients concerning whom everything is known, even though the aggregate will be less, rather than to include many others of whom little or nothing is known. Certainly, I maintain, accuracy is best subserved by so doing. Ward patients will not, as a rule, keep in touch with the surgeon after they leave the hospital and, as I am unable to give, even approximately, the condition of many, all are excluded.

Volkmann thought that if patients were free from recurrence at the end of three years after operation, a radical cure could be affirmed. Until recently surgeons everywhere accepted the teachings of this great surgeon. It is even now customary to measure our results by this standard, though many believe, and I am one of them, that a five-year period is better, as an additional 10 per cent., possibly more, of recurrences will take place or, to speak more accurately, be manifest between the three and five year periods. It is questionable if any actually do recur after three years, but, as stated, they become evident, though hitherto obscure. For all practical purposes it is a fair rule, if we admit the few exceptions. Of fifty private patients taken consecutively,[2] thirty-six (72 per cent.) are well three or more years after operation, thirteen are dead, and one has a recurrence in the mediastinum and is, of course, counted as lost. So, fourteen are either dead or soon will be (28 per cent.). To show that I have not picked my cases, the woman living with a recurrence (Figs. 1 and 2) was operated on Nov. 11, 1911, before a number of surgeons attending the Clinical Congress in Philadelphia, and it was stated that she had been refused operation by a prominent surgeon of Philadelphia on the ground that her case was inoperable. There has been no recurrence *in loco*, which shows that the growth in the breast was not inoperable. Mediastinal symptoms were not present until nearly three years after operation. Of these fifty cases there were six with such extensive axillary involvement that I was compelled deliberately to resect the axillary vein to get rid of all apparent disease and make a thorough axillary dissection. In ten of them the subclavian triangle was explored (on account of high axillary involvement or peripherally lying tumors), though most of them were found to be without disease. I have never cured a patient with supraclavicular involvement. I do not consider it as necessarily an inoperable condition as others (Johns Hopkins and Massachusetts General hospitals) report undoubted instances of cure. It is a distinctly unfavorable omen and was universally considered as a barrier to operation until Halsted proved by his results that it was not. Two of my patients had ulcerating tumors, and one of these had been denied operation by another surgeon. This woman lived more than six years without the slightest evidence of recurrence, and finally died of paralysis at the age of 72 (Fig. 3).

A summary of the thirty-six living patients shows that operations were performed as indicated in Table 2.

TABLE 2.—SUMMARY OF OPERATIONS ON THIRTY-SIX PATIENTS LIVING

Year	Number	Months
1899	1	January
1900	2	May, December
1901	1	October
1904	3	July, September, December
1905	4	September, 2; November, 2
1906	6	February, 2; July, 1; September, 3
1907	1	December
1908	4	March, May, October, November
1909	2	April
1910	6	January, April, June, July, November, December
1911	6	January, 1; April, 2; October, 2; November, 1

There are seven who have passed the ten-year period, twenty-four who have gone five years, thirty, four years, and thirty-six three years. In nearly all of them the functional use of the arm is as good as it ever was. A few of the earlier ones who were grafted show slight impairment due to a contraction of the skin. In none of those operated on since 1906 by the method I now employ is there either impairment of function or edema. Loss of both pectoral muscles does not in the least curtail the usefulness of the arm.

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[2] Three cases of acute carcinomatous mastitis are excluded; all were quickly fatal. I now believe the condition inoperable.

None of the cured patients operated on prior to 1909 (twenty-four) were given a course of Roentgen-ray treatment subsequent to operation, it being reserved for those with recurrences. Latterly I have secured, through the cooperation of my colleague, Dr. Pfahler, results which warrant its employment in the more advanced cases. In those of average severity, also, unless I feel satisfied as to the thoroughness of removal, it is employed. In early cases I can see no reason for its use. In several very advanced cases I have been inclined to give at least a part of the credit to Roentgen-ray treatment subsequent to operation. One such patient from Atlantic City was operated on in July, 1910. I did not believe that she would live a year. At my request, she was reexamined, along with nearly all of the cases here reported, November, 1914, and was examined also by a number of visiting members of the American College of Surgeons. She is absolutely well in every way.

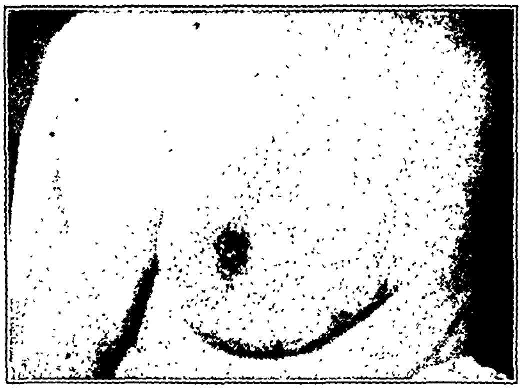

Fig. 7.—Paget's disease.

Since March, 1913, at least three patients operated on were so advanced that the Roentgen rays were sent into the wounds in great concentration before they were sutured, as no hope of a radical cure was entertained in any of them. One, with a very large sarcoma, died in six months (Figs. 4 and 5).

One, a case of Paget's disease (Figs. 6 and 7) with one of the very worst axillas I have ever encountered, showed a recurrence in the neck in thirteen months. The neck had been explored at the time of operation with negative result. This woman, who is alert and of quick perception, assures me that she consulted me two weeks after she noticed the inflammation and ulceration around the areola and nipple. She could not have suffered from cancer less than from eighteen months to two years, and this statement was made in my notes taken the day she came to me from Wellsboro for operation. She had no pain or other symptom, and believed herself to be well until the trouble with the nipple and areola began; and it was for this that she first consulted Dr. Longwell, and not for the cause of it. It proves that the affection of the nipple and areola is usually a secondary or terminal process, as I have always maintained.

The third patient to receive Roentgen rays into the wound before suturing is apparently well in every way more than fifteen months after operation. She was also examined, this month, by a number of visiting surgeons and myself.

But, grateful as I am for the assistance of the Roentgen rays or any other agent in combating so protean an affection as cancer, I wish to state most positively that they have no place in the treatment of cancer of the breast *until after operation.* They will cure epitheliomas of the skin and superficial sarcomas which may be inoperable. This I have witnessed more than once. But I have yet to see a single patient with mammary carcinoma passing the three-year limit in whose case the credit could fairly be given to Roentgen rays. They are in my judgment and experience much better than radium, as the only two patients I have submitted to the latter treatment were unquestionably made worse by it and quickly succumbed. This was their opinion and it is mine.

To treat an operable neoplasm of the mammary gland by either electricity, radium or Roentgen rays has no justification whatsoever, pathologic or clinical. We have heard entirely too much of radium and its marvelous cures and have had too little verification of its beneficent powers. Whatever it will do, Roentgen rays will do better. The latter are available to poor and rich alike, while only the wealthy can afford to travel in their private cars across the continent chasing this *ignis fatuus.* The German surgeons have tried it out, abandoned its use, and warned the public against it. The storm in America has about passed, the air has been clarified, the damage estimated, and, like lightning, it has struck in only a few high places.

2106 Walnut Street.

BUYO CHEEK CANCER

WITH SPECIAL REFERENCE TO ETIOLOGY *

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In my early work at the Philippine General Hospital, Manila, I was impressed with the frequency of cheek cancer in women, and also with the almost universal habit in elderly persons of chewing buyo. The possibility of buyo as an etiologic factor in mouth cancer occurred to me, and accordingly I have studied all the cases at my disposal and reviewed the histories of all cases of mouth cancer that are recorded at the Philippine General Hospital.

The histories which I reviewed are of patients who were under the care of Drs. John R. McDill, P. K. Gilman, R. Rembe, Hans Ernst Schiffbauer and of patients from my own service. The photographs for the most part were made by the Bureau of Science.

In presenting this paper, I wish first to discuss in some detail the various constituents of the buyo chew; secondly, to discuss the prevalence of the habit and customs in connection with it, and thirdly, after presenting the cases in a more or less outline form, to consider the essential findings in these cases and draw conclusions from the data hereinafter given.

The name "buyo," which is commonly used and applied to the "chew" that is indulged in, is not in all cases strictly definite, as the constituents of the combination are generally four in number: the buyo leaves, the betel-nut, slaked lime and tobacco.

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* Read before the Manila Medical Society, March 2, 1914.

It is true that the buyo leaves alone at times are chewed, but this is probably not from choice but rather because of lack of opportunity to obtain the other principles, or because of insufficient funds to buy them. So in this paper, when the term "buyo chew" is used, it will mean, as is commonly understood, the whole: all the constituents of the combination rather than the buyo leaves alone. In India the word "pan" is similarly employed referring to the leaf alone or to the leaf with the other constituents.

THE BUYO LEAF

The botanical name for the buyo leaf plant is *Piper betle,* Linn. (natural order, *Piperaceae*). The term "buyo" is of Visayan origin, but this is used quite commonly by the Tagalogs and other peoples of the Philippine Archipelago.

The cultivation of the betel-leaf plant is pursued with more careful attention than any other economic plant in the islands. No pains are spared in providing the roots of this plant with abundant air, water and food. Its leaves and stems are protected against insects, wind and sunshine.

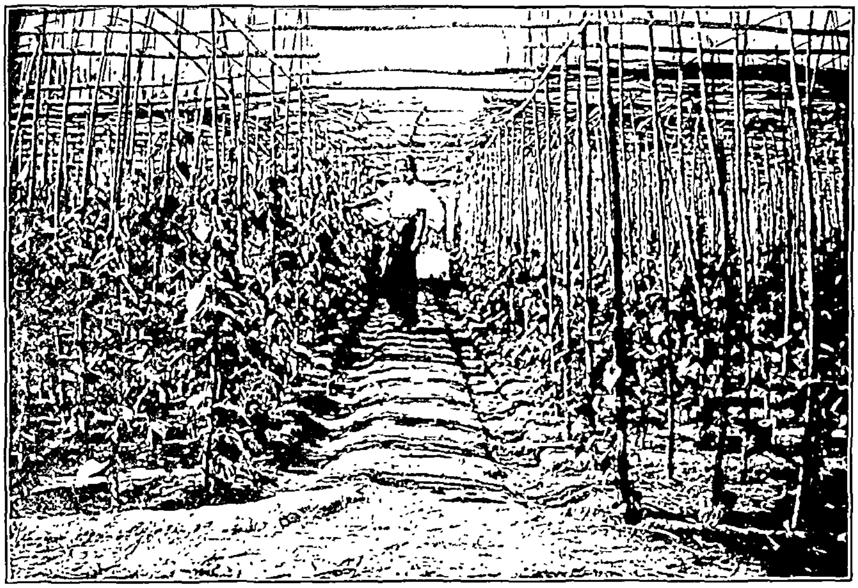

Fig. 1.—View of buyo vineyard, in Pasay, showing the careful arrangement of vines about the bamboo sticks and the cross-sticks above, over which material is placed to protect the young leaves from the hot sun and hard rains and winds; on each side of the center path are the irrigation canals. Photograph by C. H. Storms.

Many families in Pasay, Rizal Province, near Manila, make their livelihood by growing these leaves for the market. Each plant occupies an area of from 30 to 70 cm. (from 12 to 27½ inches) and one family will care for as many as 1,500 or 3,000 plants (Fig. 1).

The regulation of the water supply to the plants is important, as either a lack of or an excessive amount of water retards the growth. All the Pasay gardens are irrigated, and on days when it does not rain, water is supplied by well-sweeps. To prevent excess of water after a hard rain-storm, and during the rainy season, a trench one meter deep is dug around each plot. For the same reason, when the garden is plotted out it is arranged so that it resembles a gently sloping roof; the ridge at the center of the plot runs the entire length and is about 25 cm. (10 inches) higher than the soil along the two lower edges. In some plots the soil slopes in but one direction. In others, however, the two halves of a plot slope toward each other.

A porous soil is best suited as it allows free circulation of both air and water, which promotes rapid root growth and in turn rapid growth of stems and leaves. Impervious soils are made porous by addition of sand, lime and decaying vegetable matter.

As the vines mature the stems are tied to bamboo sticks which are about 3 meters (10 feet) high. The bamboo sticks in each row are firmly tied to a long bamboo strip that runs the entire length of the row, 2 meters (6½ feet) above the ground. Other cross-pieces of bamboo are placed 60 cm. (2 feet) apart and firmly tied to the long strips. Over these cross-pieces a few banana and palm leaves are usually laid to protect the tender leaves from the sun, as properly shaded vines produce the more desirable larger and thinner leaves which bring a better price in the market. Protection from objectionable winds is obtained by surrounding the plot with a jungle growth of coconut and bamboo trees, and banana or other plants.

There are three varieties of betel leaf: the Sañghilo, the Pula and the Kinalabao. The Sañghilo has hard, dark leaves. The Pula are large, pale, green leaves which are very tender and more highly priced than the dark green leaves of the Sañghilo. The Pula plants are delicate and will not produce larger leaves unless fed and watered regularly. The Kinalabao plants produce many large, coarse, fibrous leaves which are less desirable and usually not for sale in the market, unless the Pula happen to be very expensive on account of a short crop.

The desirable leaves on each plant are gathered once a week. When the terminal leaf on a stem is from 6 to 8 cm. (2⅓ to 3 inches) long, the second and sometimes the third leaves on that stem are ready to be pinched off. Each week a plant supplies from five to eight leaves. At wholesale prices one centavo (one-half cent, gold) is paid for from four to fifty good leaves. In rare instances 100 leaves bring but one centavo. In the market the leaves are assorted and divided into first, second and third class. The first-class leaves are the larger, wider, tender, pale green leaves and are sold two for one centavo. The second class, which are not so wide and are tougher, are sold five for one centavo. The third class or least desirable are sold at the rate of seven for one centavo.

In India betel leaves are chewed either in their natural green condition or after they are bleached by placing them in baskets where they are kept damp and dark for from eight to twenty days. Bleached leaves are usually worth three times as much as green ones. The essential oil is the constituent which gives the leaves their value. Green leaves contain about 1.23 per cent. of essential oil and bleached ones from 4 to 5 per cent.

The leaf is considered of value also for its therapeutic properties. In India the midstem of the leaf stripped of the leaf proper is inserted into the rectum of constipated children. In the Philippine Islands it is used extensively as an application to superficial ulcers, wounds, inflammation, etc.

THE LIT LIT VINE

When the buyo leaves are not obtainable the lit lit leaves (Fig. 2) are used as a substitute. This vine is easily grown and demands but little attention. The leaves, however, are not so desirable as they are rather tough and are not used when the buyo leaf can be obtained.

THE BETEL-NUT

The betel-nut, which is an important constituent of the buyo chew, is the fruit, or as it is popularly termed, nut of the areca or betel-nut palm (Fig. 3). The proper botanical name of this palm is *Areca catechu,* Linn.; *Palmaceae.*

The palm has a straight cylindrical stem from 12 to 15 meters (40 to 50 feet) high, at the top of which branch many graceful, long, gently curved palm leaves. The nuts are in clusters at the level of the junction of the palm leaves. When fresh picked they have a tough, shiny skin-like husk or covering (Fig. 4 *a*) which, when the nuts are dried, becomes loose and separates into fine tough thread-like fibers (Fig. 4 *b*).

The husked nut itself (Fig. 4 *c*, *d*) is conical and of dense, solid consistency throughout and cuts with considerable resistance.

The nut is rich in tannic and gallic acid, and the young nut on account of its astringent property is used to check diarrhea and in cases of superficial ulcers. In India the unripe nuts are viewed as a laxative and a carminative, and a paste is made of the powder of the dry or burnt nut and is used as a dentifrice. In Europe the ripe fruits have been employed as an anthelmintic and astringent. Most writers affirm that occasionally the nuts (especially when eaten fresh) are found to possess intoxicating and poisonous properties. This is believed to be an accidental peculiarity of certain trees. This poisonous property has been ascertained to be destroyed by boiling, and hence, no doubt, the custom has come into existence of preparing the nuts for market by various methods of cooking.

Fig. 2.—A lit-lit vine and a native nipa shack. This leaf is sometimes used when the buyo leaf cannot be obtained. The vine is more easily grown and more rugged, but the leaf is not so desirable, as it is rather tough. Photograph by the Bureau of Science.

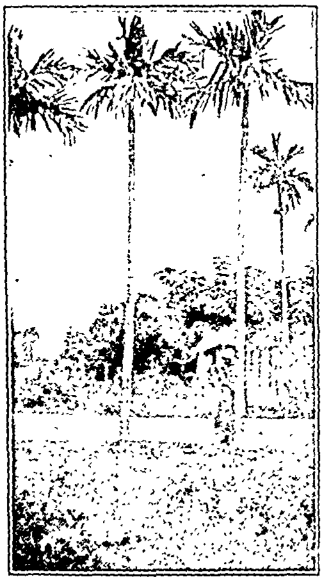

Fig. 3.—A group of betel-nut palms, growing in Pasay, Province of Rizal, near Manila. Photograph by the author.

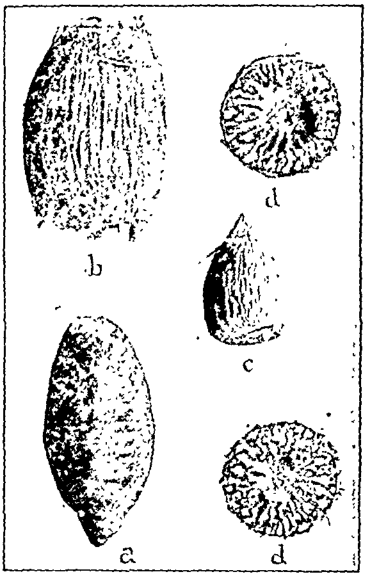

Fig. 4.—The betel-nut; showing (*a*) the newly picked nut with smooth shiny husk; (*b*) the dried nut with ragged shreddy husk; (*c*) the nut husked and (*d*, *d*) the nut in cross-section.

The powdered seeds have also long held some reputation as an anthelmintic for dogs, and areca has now been introduced into the British Pharmacopeia on account of its supposed efficacy in promoting the expulsion of the roundworm (*Ascaris lumbricoides*).

Commercially it is used in making a red dye by boiling with lime.

Lime is a regular ingredient of the buyo chew, and is spread on the piper betel leaf (Fig. 5) before it is folded and wrapped about the disk of nut. The purpose of the lime is to give a pleasant, sweet taste to the chew, which, when taken without the lime, is bitter and not so desirable. It also has a chemical action on the betel-nut and leaf which produces the red color and dyes the oral mucosa red and the teeth black.

The lime is carried in one of the compartments of the buyo boxes which are so extensively used by the Moros. The inroads that are made on the brass compartment by the lime is more than a gentle suggestion that here we have a clue to the source of irritation which produces the lesions so frequently found in the cheek.

The lime is obtained from sea shells. The shells are burned, thus driving off carbon dioxid from the carbonate, and calcium oxid or quicklime is produced. This quicklime is mixed with water which it readily absorbs, and slaked lime or calcium is produced.

In the markets, this slaked lime wrapped in banana leaves (Fig. 6) is sold, and a small handful of lime brings one centavo. The lime obtained from shells is objected to, however, as a part of the buyo chew, by certain Hindus, on the ground that it is derived from animals.

Tobacco leaves have long been a constituent of the buyo. Before the American occupation of the Philippines, plug tobacco was seldom, if ever, used. Now the buyo is flavored by an accompanying chew of American plug cut tobacco or a native tobacco, which though put up in the shape of a cigar, is in reality a plug cut (Fig. 7).

The leaves are cut longitudinally into three parts (Fig. 5), on one of which is placed a smear of lime. These three pieces of the leaf are now folded together containing the lime and are ready to be wrapped around a disk or cross-section of the betel-nut.

For additional flavor other substances such as cloves, cardamom, nutmeg or camphor are also sometimes used.

Since the introduction of plug cut tobacco into the chew, dating from the time of the American occupation, plug cut chewing tobacco has been popularized. Statistics have been quoted showing the growing preference of Filipinos for chewing tobacco rather than buyo. Recently, however, an amendment to the internal revenue law of the Philippine Islands has placed a tax of 48 centavos per kilogram on chewing tobacco. This is 33 per cent. higher than the tax imposed in the

United States. A member of the legislature is reported to have given as his reason for the higher tax that the people could use buyo.

Elderly persons who have acquired a taste for chewing buyo, but are no longer able to masticate the hard nut because of loss of their teeth, have a special method of preparing the chew. A contrivance known as the "calicut" is employed. That is, a disk of hard wood is placed within and at the node, or transverse portion, of a hollow segment of bamboo stick. Then within the hollow bamboo are placed buyo leaves, betel-nut and lime, and these are minced into fine particles by a flat spatula-like knife. This forms a pulp or paste-like mass which is then chewed. The old men carry the calicut around with them in their belts, and when they desire a chew it is prepared fresh each time. The calicut of the wealthier class is frequently made of silver.

HISTORY OF THE CHEW

The habit of chewing buyo, or "pan" as it is called in India, has been a custom with oriental tropical people for many centuries. It is estimated that one-tenth of all the people on the earth chew this mixture. Sir George Wat[1] writes:

> From the most ancient times the presentation of pan has been the polite termination of ceremonial visits. . . . The name "betel" or "betle" is Malayan in origin and simply means "a leaf," and came to English through Portuguese *betre*. The best-known vernacular names for the nut are supárí, hopárí, gua, gaya, kasaile, mari, tambul, pokavaka, oka, kamugu, adike, kunsi, etc.
>
> It would seem that the earliest historic reference by a European to the habit of chewing betel-nut occurs in the writings of Marco Polo (1298 A. D.). "All the people," he wrote, "have the habit of keeping in the mouth a certain leaf called tembul." Subsequently Vasco da Gama (in 1498), Verthéma (in 1510), Barbosa (in 1516), Garcia de Orta (in 1563), Acosta (1578, 1594), Abul Fazl (in 1590), Linschoten (1598), François Pyrard (1601), Roe (in 1615), Jacobus Bontius (1629), Bernier (1656-68), Boym (1656), Vincenzo Maria (1672), Travernier (1676), and Catchpoole (1703) (cf. Yule, Diary of William Hedges, ii, 331), all give similar accounts. Adams in his translation of Paulus Aegineta refers to the betel-nut as introduced to materia medica by the Arabs. He quotes amongst others the passages referring to it from Avicenna, Haly-Abbas, Abn Baithar, Elmasudi, Serapion and others. Abn Baithar says that it is the fruit of a palm, and observes that it is a gentle purgative, makes the breath fragrant, is a cordial and strengthens the gums and teeth. Linschoten remarks that "the Indians goe continually in the streets and waies with bettele or bettre and other mixtures in their hands, chawing, especially when they go to speake with any man, or come before a great lord." Abul Fazl apparently never saw the palm growing, since he likens it to a cypress tree that in the wind sways till it touches the ground. This circumstance may be accepted as showing that from very ancient times, as at the present day, the nut has been carried to regions remote from the areas of its production. Numerous publications have appeared within the past century that deal with the betel-nut, as met with in India.

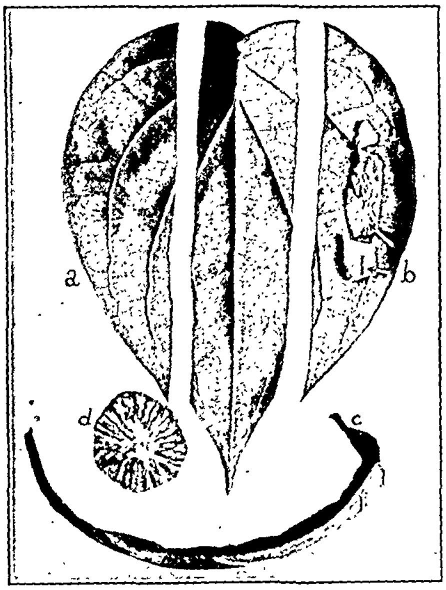

Fig. 5.—Cut betel leaf, lime and a disk of betel-nut. In preparation for chewing, the betel leaf (*a*) is cut longitudinally into three pieces; the lime (*b*) is placed on the leaf; the three pieces of leaf with the lime are folded longitudinally on themselves (*c*) and this is wrapped about a disk or cross-section of betel-nut (*d*).

Fig. 6.—Slaked lime, made from sea shells, and wrapped in banana leaves, as sold in the Manila market for one centavo.

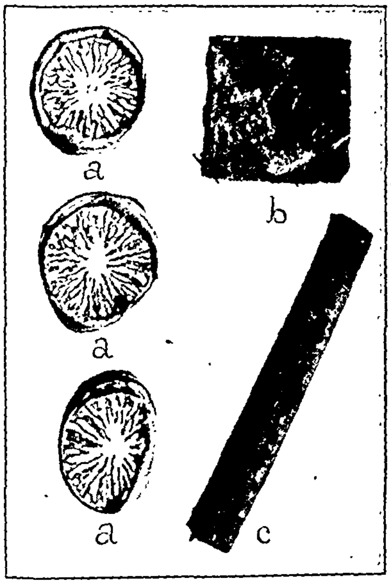

Fig. 7.—Showing (*a*, *a*, *a*) the various ingredients combined and the "chew" ready to be introduced into the mouth where it is generally held between the cheek and the teeth as one holds a chew of tobacco; (*b*) a piece of American plug cut tobacco and (*c*) a plug cut of native tobacco, one or the other of which is generally used to flavor the chew.

In the Philippine Islands and Zulu Archipelago, the buyo is almost universally chewed by adults and often by children of tender years. I have seen it used extensively in different parts of the Island of Luzon, Island of Samar, Island of Cebu, Island of Iloilo and in Parang, Zamboanga and Jolo, and by the Moros on the Island of Mindanao.

It has been estimated that 90 per cent. of the elderly persons in the islands chew buyo.

In Jolo I had the opportunity of an interview with the Sultan of Zulu. In regard to chewing buyo and its causing cheek cancer, the sultan stated that all the Moros were great buyo chewers; that among these people he himself had often noted growths on the inside of the cheek; that they never became cured of these growths and that he also believed that chewing buyo caused it. The sultan himself is an inveterate

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1. Wat, George: The Commercial Products of India, p. 83.

buyo chewer, and as he conversed, frequently used a beautiful colored glass cuspidor, placed on his desk, to expectorate into.

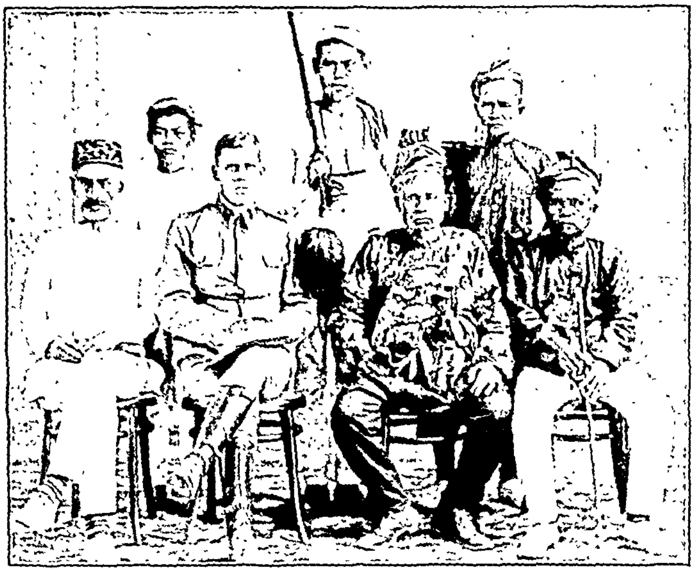

Fig. 8.—A Morro datto (chief) and staff, showing the buyo carrier in back row to the right with a large box. The officer in uniform is a captain in the constabulary. The buyo is carried as commonly in the islands as cigarets and cigars are in the United States. Photograph by the Bureau of Science.

The buyo boxes carried by the Moros are of various sizes, shapes and material. Boxes are made for individual use which are carried around by the owner slung over his shoulder by a chain or cloth handle, or bound to the body by a cord about the waist. Larger boxes are used at home and passed about by a buyo carrier when the buyo is offered to company. A buyo carrier is a part of a Moro datto's (chief's) retinue (Fig. 8). The women, who are possibly greater chewers than the men, also have buyo boxes and buyo carriers (Fig. 9).

The boxes are made of brass and frequently inlaid with silver, which is mostly obtained by melting and hammering out old Spanish coins.

In reviewing my series of 49 cases of cheek cancer, I find a positive history of chewing buyo in 40, or 81 per cent. In no case is there a history of not chewing buyo. In only 9 cases of this series of cheek cancer does it remain a question whether the patients did or did not chew it.

The length of time these patients had been chewing buyo before the growth appeared varies from three years, the shortest time, to sixty years, the longest, or an average, when we had this question of time definitely answered in 17 cases, of thirty-five years.

It occurs in women more frequently than in men. Of 49 cases, 34, or 70 per cent., were in women. The women chew buyo more than the men.

It is essentially a sickness of advanced years; the youngest patient was 23 years old and the oldest 86. The average age of forty-nine patients is 52 years. Of the forty-nine patients, thirty-three, or 67 per cent., were married; fourteen, or 30 per cent., widowed, and two, or 4 per cent., single.

In twenty cases, that is, in every case in which the question was put to the patient, the site of lesion corresponded definitely to the position in which the patient was accustomed to hold the chew. The patients themselves often volunteer the information that the buyo caused the lesion and that that was the side on which the chew was held.

The lime is, I believe, the essential or direct cause. However, the chemical properties of the leaves, containing essential oil, and the chemical properties of the nut, containing tannic and gallic acid, may be predisposing factors. Sometimes a rather large quantity of lime is used, and the patient states that this causes a "burning" sensation and often irritates the cheek.

That the betel-nut is a predisposing or an accessory mechanical factor is shown forcibly in one case. This patient had previously chewed buyo, and an epithelioma of the left gum developed. The left jaw was resected by Dr. Burdette, three months before I saw her. She attributed the origin of the growth to the action of the lime in the buyo. Hence since her operation she has not used any lime whatsoever, but has chewed only the betel-nut which had been chopped up fine by the use of the calicut, as she is no longer able to masticate the nut because so many teeth are missing.

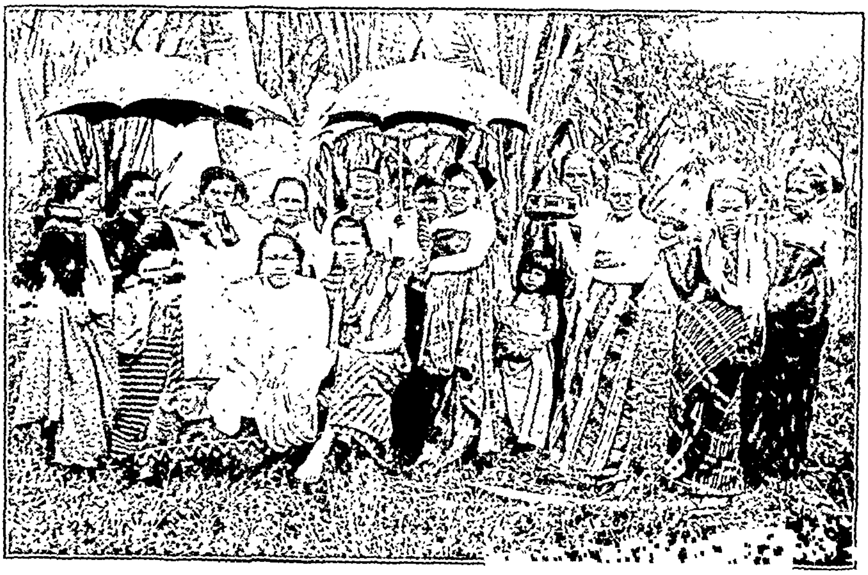

Fig. 9.—A Moro datto's (chief's) wife, her retinue a [illegible] uyo carriers, the second and the third on the right and the first and third on the left. The women are greater buyo chewers than the men. Photograph by the Bureau of Science.

In this case numerous white pin-point to pin-head sized white deposits of betel-nut pulp are scattered over the mucous membrane of the lower lip and the gum of the mandible and the roof of the mouth, and hard and soft palate. When these white areas are scraped from the mucosa, a small bleeding ulcerated area results. Thus we see that the betel-nut may aid or prepare in a mechanical way an ulcerated area for the chemical action of the lime.

The clinical history of the patients suffering from buyo cheek cancer are strikingly similar. The first symptom the patients note is an involvement of the inner aspect of the cheek. This is constant and true of all the cheek cases. At first a small elevated growth in the mucosa of the cheek is noted (Fig. 10). Early ulceration of the growth is complained of, and sometimes the patients state that the growth began as an ulcer. Pain is a constant symptom and is frequently slight and confined to the site of lesion itself, but often accompanied by a severe pain of a referred type, radiating to the angle of the jaw or parotid and submaxillary regions. A burning sensation is at times complained of.

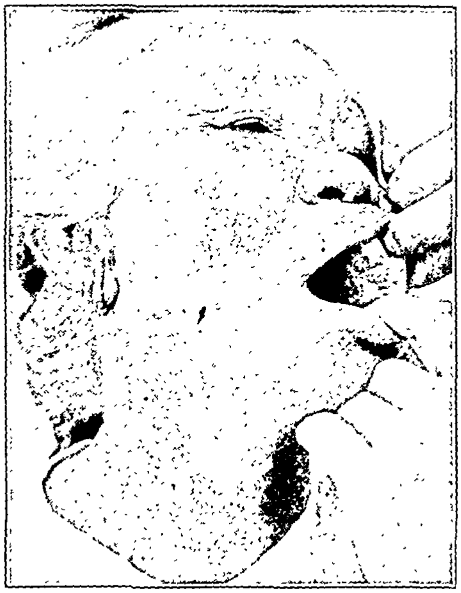

Fig. 10.—A case of buyo cheek cancer.

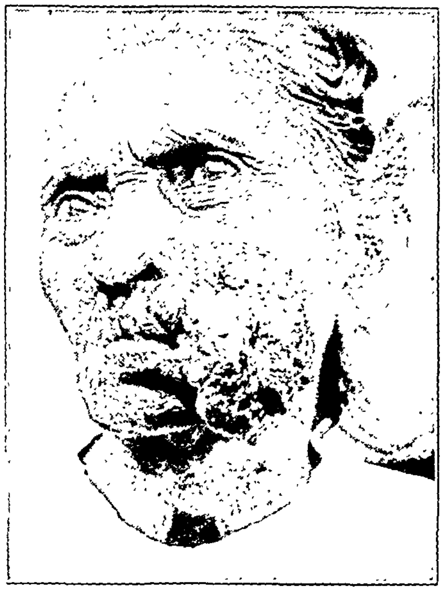

Fig. 11.—A case of buyo cheek cancer.

The growth of the tumor progresses slowly, takes on a cauliflower-like shape and soon projects from the mucosa into the oral cavity between the two rows of teeth, making mastication painful and often impossible.

Abscess formation in the tumor mass is a frequent complication, and when this ruptures spontaneously sinuses may result opening either externally or internally, or both. A foul, disagreeable odor is present in these cases.

Bleeding occurs frequently when the growth has become enlarged and fungus-like, as the growth is readily irritated by the teeth and food and by the movement of mastication or by being touched during examination.

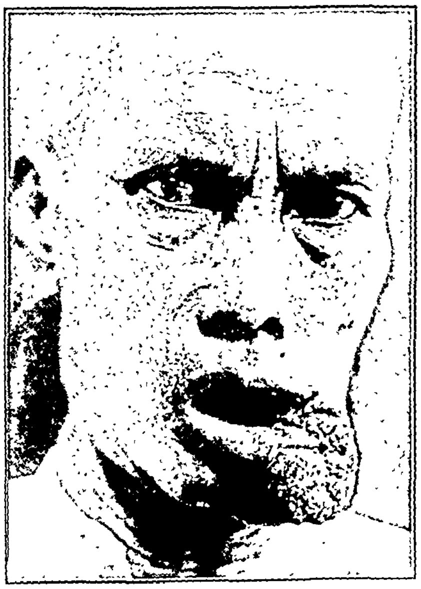

Fig. 12.—A case of buyo cheek cancer.

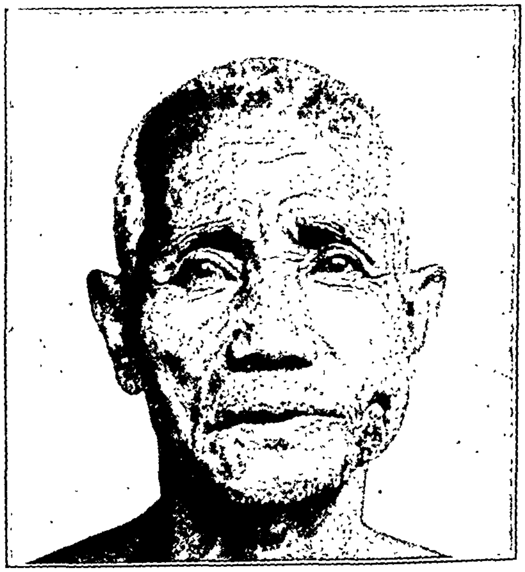

Fig. 13.—A case of buyo cheek cancer, showing the extension through the cheek.

The mucosa of the lips, tongue and entire oral cavity is colored a bright red and the teeth a dark brown or black by the buyo. The teeth in the region of the growth fall out early as the extension of the growth from the cheek to the neighboring gums proceeds.

From the initial lesion in the mucosa of the cheek the extension of the growth progresses upward, downward, posteriorly and anteriorly, and also by perforation through the cheek. Accordingly, the secondary involvement includes the upper gum, lower gum, tonsil and angle of the mouth. The outer surface of the cheek may be involved in one of two routes, namely, by extension from within from the angle of the mouth involving the cheek in a cauliflower-like mass (Figs. 11 and 12), or secondarily by perforating the cheek, the angle of the mouth not being involved (Fig 13).

The regional submaxillary lymph-glands become enlarged and indurated, but general metastasis is rare.

At my request, Dr. B. C. Crowell, associate professor and chief of the Department of Pathology in the University of the Philippines, has reported as follows on the histology of the surgical pathology specimens removed from a number of cancer of the cheek cases from my service at the Philippine General Hospital:

> Small portions of tissue from the inside of the cheek have been submitted to me for histologic examination from twelve cases, and in one of these cases a small portion was also submitted from the outside of the cheek, the lesion having been said to have extended from within outward.

Sections from these tissues have all shown the structure of an epithelioma or carcinoma originating from pavement epithelium. There has been a remarkable similarity in the general characters of the microscopic lesions in the different cases, so that a brief description of the histology of one case may be considered as applying to all cases. There is marked downgrowth of the epithelium below its normal limiting basement membrane in the form of dense strands, with a very marked tendency to the formation of epithelial pearls and apparent separation of masses of epithelium from direct continuity with that on the surface. The pearls, which form so large a part of the structure and have been seen down in the muscle tissue, are frequently almost homogeneous in appearance, having undergone hyaline degeneration or extensive keratinization. The intervening stroma occupies a relatively insignificant part, but in all cases has shown extensive round-celled infiltration. Practically all of the cases have shown a greater or less grade of ulceration, but in none of the cases examined has there been any conclusive evidence that the tumor originated on the basis of a preexisteing ulcer.

I have had the opportunity of seeing several of these cases clinically and almost all showed extensive growth and ulceration. One early case, however, was seen, which presented a circular, flat, elevated growth on the inner side of the cheek. This was pale gray in color, and its surface was smooth and glistening, with no evidence of ulceration, being apparently entirely covered by mucosa. In this case, at least, the growth apparently did not originate on the basis of an ulcer, and it is supposed that the other cases were similar in their earlier stages. This would seem to remove these cases from that large class of cases which includes those following specific ulcerations such as tuberculosis or syphilis and gastric carcinomata originating on preexisting ulcers. It would suggest that they might be added to the class of cases which follow prolonged exposure to chemical irritation such as occurs in workers in paraffin and arsenic.

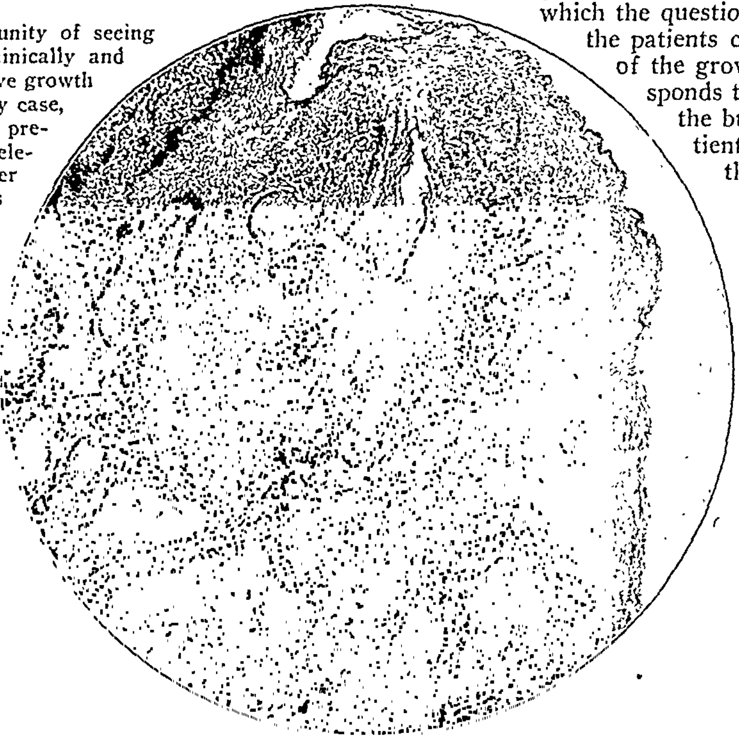

Fig. 14.—Photomicrograph of a section of tissue removed from buccal growth.

PROGNOSIS

The prognosis of buyo cheek cancer is not favorable. If not operated on, the growth becomes an enormous unsightly mass, and metastasis to regional glands occurs. The primary growth ulcerates, becomes infected, and large sloughing defects result. If operated on, the prognosis is also poor. This is because the patients do not report to the surgeon until the growth is extensive. Then a radical operation, removal of the cheek and a plastic operation from neck or forehead and scalp, is necessary. In this operation the mortality from aspiration pneumonia is high. In no case of this series did an operation give a permanent cure.

TREATMENT

The question of treatment of buyo cheek cancer is worthy of the most serious consideration. The surgical treatment is unsatisfactory. A radical or a palliative measure may be indicated. In early cases, which unfortunately are rarely seen by the surgeon, when the involvement is more or less limited and the regional glands not involved, a wide removal of the cheek and regional lymphatic glands followed by a plastic operation is the only hope of permanent cure.

If the mass is very extensive and extends into the oral cavity, between the two rows of teeth, making mastication impossible, some relief is obtained by a palliative operation, making use of the curet and electrocautery.

SUMMARY

We find, thus, cancer of the cheek as a common lesion in a country where buyo is universally chewed. It occurs more frequently in women than in men. In 100 per cent. of cancer of the cheek cases in which the question was put we find that the patients chewed buyo. The site of the growth in the cheek corresponds to the position in which the buyo was held. The patients themselves attribute the origin of growth to the chewing of buyo. In this group of seventy-five cases of oral cancer we find that forty-nine, or 65 per cent., are cancer of the cheek, a percentage found in no other than a buyo-chewing country.

Cancer of the cheek in Europe and in North America, countries where buyo is not chewed, is a comparatively rare lesion, especially in women.

In buyo cheek cancer we find a lesion which, etiologically, clinically, pathologically and from the point of view of course and prognosis, may be regarded as a definite and separate lesion having its own entity. It is as definite and constant etiologically, clinically and pathologically as are the Roentgen-ray epitheliomas, the kangri skin cancer of India, the epitheliomas of the arms of paraffin makers and the chimney sweep's cancer of England.

CONCLUSION

Cancer of the cheek, so commonly seen in the Philippine Islands, is caused by chewing buyo, and the active agent is the lime.

Buyo cheek cancer is a distinct, definite and separate disease of oriental tropical persons having an entity as definite as the Roentgen-ray epithelioma occurring on the hands of the early Roentgen-ray workers, as the kangri skin cancer of India, or the skin cancer on arms of paraffin workers and the brand cancer of cattle of the United States and the chimney-sweep's cancer of England.

Histologically, we find the picture of an epithelioma, and the epithelioma may be best classified with the group of epitheliomas known as skin cancer, produced by chronic irritation, which may be actinic, thermal, chemical or mechanical. In the case of buyo cheek cancer it is chemical, the action of the lime.

As this is a very common lesion in the Philippine Islands, and as the surgical treatment is far from satisfactory because the cases are too frequently seen too late, an educational campaign is advisable to teach the evil results of buyo chewing and to encourage a prophylaxis, to be gained by an entire stopping of the buyo habit.

SUMMARY OF SEVENTY-FIVE CASES OF ORAL CANCER, FORTY-NINE IN THE CHEEK AND TWENTY-SIX IN ORAL STRUCTURES OTHER THAN THE CHEEK

CANCER OF THE CHEEK CASES

Series No.	Age	Civil State*	Sex†	Buyo Chewers‡		Site of Lesion
					Years	
1	48	M	♀	+	15	Left buccal mucosa.
4	51	M	♀	?	..	Right cheek.
5	23	M	♀	+	..	Right cheek.
6	50	M	♀	+	..	Right cheek.
7	50	W	♀	+	..	Right cheek.
8	35	M	♂	+	..	Right cheek.
9	40	M	♀	+	..	Right cheek.
10	73	M	♂	+	60	Left cheek.
13	27	M	♀	?	..	Right cheek.
14	60	M	♀	+	40	Left cheek.
16	45	M	♂	?	..	Left buccal mucosa.
18	52	M	♂	?	..	Left cheek.
19	50	S	♂	?	..	Right cheek.
20	65	M	♀	+	..	Right cheek.
22	80	W	♂	+	..	Left cheek.
23	60	W	♀	+	..	Left cheek.
24	86	M	♀	+	..	Right cheek.
25	56	W	♀	+	..	Left cheek.
26	50	M	♂	?	..	Right cheek.
27	55	M	♂	+	..	Right cheek.
28	30	M	♀	+	..	Right cheek.
30	60	M	♀	+	..	Right cheek.
34	60	S	♀	?	..	Right cheek and gum.
35	46	W	♀	?	..	Buccal surface, cheek.
39	50	M	♀	?	..	Inside, left cheek.
40	35	M	♀	+	..	Inner side, left cheek.
41	48	M	♀	+	..	Inner side, right cheek.
42	58	W	♀	+	..	Right cheek and gum.
49	50	M	♀	+	..	Inner side, left cheek.
50	59	W	♀	+	..	Inner side, left cheek.
51	36	W	♂	+	..	Inner side, left cheek.
52	59	W	♀	+	..	Left cheek.
53	58	W	♀	+	..	Right cheek.
57	53	M	♂	+	..	Inner surface, right cheek.
58	50	M	♀	+	..	Mucous surface, left cheek.
61	56	M	♀	+	37	Left cheek.
62	50	M	♀	+	40	Left cheek and gum.
63	70	W	♀	+	45	Middle side, left cheek.
64	45	M	♀	+	40	Left cheek.
65	67	W	♂	+	30	Right cheek.
67	49	M	♂	+	20	Right cheek.
68	48	M	♂	+	31	Right cheek.
69	50	W	♀	+	43	Right cheek.
70	47	M	♀	+	37	Left cheek.
71	64	W	♂	+	3	Right cheek.
72	77	M	♀	+	65	Right cheek.
73	50	M	♀	+	43	Left cheek.
74	30	M	♀	+	16	Right cheek.
75	59	M	♂	+	29	Left cheek.
Total 49	2,570	M 32 S 2 W 14	♀ 34 ♂ 15	+ 40 — 0 ? 9	594	27 R., 21 L., L.(?), cheek.
Aver. 65%	52	M 67% S 4% W 30%	♀ 70% ♂ 30%	+81% ?18%	35	55% R., 43% L., 2% (?), cheek.

CANCER IN ORAL STRUCTURES OTHER THAN THE CHEEK

Series No.	Age	Civil State*	Sex†	Buyo Chewers‡		Site of Lesion
					Years	
2	65	W	♂	?	..	Tongue.
11	36	M	♂	?	..	Tongue, right side.
21	37	M	♂	+	..	Tongue, right side.
38	50	W	♂	+	..	Tongue, right side.
43	58	M	♂	+	20	Base of tongue.
44	63	W	♂	?	..	Left side of tongue.
45	54	W	♂	?	..	Base of tongue and right gum.
46	58	W	♂	+	..	Left side of tongue.
54	59	M	♀	+	..	Left edge of tongue.
55	58	W	♀	?	..	Left edge of tongue.
59	62	M	♂	?	..	Left side of tongue.
60	52	M	♀	+	2	Left side of tongue.
66	73	W	♀	—	..	Tongue, anterior portion.
3	65	W	♂	?	..	Right upper lip.
36	70	W	♂	?	..	Right upper lip.
56	65	M	♀	?	..	Right angle of mouth.
17	50	M	♀	?	..	Right tonsil and pillar.
47	73	M	♂	+	..	Left tonsil.
48	36	M	♂	+	..	Right tonsil and pillar.
37	47	W	♀	—	..	Base of uvula.
12	45	M	♀	+	..	Left jaw.
15	56	M	♀	+	..	Floor of mouth and tonsil.
29	45	M	♂	+	..	Gum, right side.
31	59	M	♂	+	..	Gum, superior, right side.
32	42	W	♀	?	..	Hard palate.
33	83	M	♂	?	..	Palate, left side.
Total 26	1,461	M 15 W 11	♀ 10 ♂ 16	+ 12 — 2 ? 12	22	
Aver. 35%	56	M 58% W 42%	♀ 38% ♂ 62%	+46% — 8% ? 46%	11	

ENTIRE SERIES

Total 75	4,031	M 48 S 2 W 25	♀ 44 ♂ 31	+ 52 — 2 ? 21	616	
Aver.	54	M 64% S 3% W 33%	♀ 59% ♂ 41%	+69% — 3% ?28%	32	

* In this column M means married, S single and W widowed.
† In this column ♂ means male and ♀ female.
‡ In this column + means yes and — no.

Philippine General Hospital.

Do You Know Your Age and Birthday?—As an additional evidence in favor of a rapid extension of birth registration and issuance of birth registration certificates to parents, a matter of both legal and medical importance, Stiles in Public Health Reports cites instances of popular ignorance and carelessness regarding birthdays and age. He says this applies not only to families of laborers and farmers, but to educated families, professional families and leading families much more frequently than one would suspect until one attempts to gather such information. In a study of about 5,000 schoolchildren, whites and negroes, Stiles found a startling ignorance and carelessness in regard to their ages. One university graduate signed a sworn statement that he was three years younger than the records showed him to be. He did this in good faith until proof was presented. Pupils may know their age at the last birthday, but when asked the year of their birth, even high school pupils and other children in astonishing numbers give erroneous answers, nor do their parents, especially the fathers, know the date of birth of their children, according to Stiles. Stiles does not believe that this is always an evidence of mental defectiveness, and cites the instance of the university graduate referred to, but that it is a strong argument in favor of accurate registration of births.

CAVERNOUS AND CYSTIC LYMPHANGIOMA OF THE CECUM

WITH REPORT OF A CASE *

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ST. LOUIS

If Wegner's position relative to the congenital origin of lymphangioma is correct, it is not at all surprising that my review of the available literature has failed to show the record of a case of lymphangioma of the cecum or colon. With the present-day method of microscopic examination of all tumors removed at operation, surgeons have become appreciative of the importance of the method and the frequency of tumors heretofore regarded as of infrequent occurrence. It is not at all improbable that the future will show that lymphangioma of the large intestine is not so uncommon as the literature now indicates.

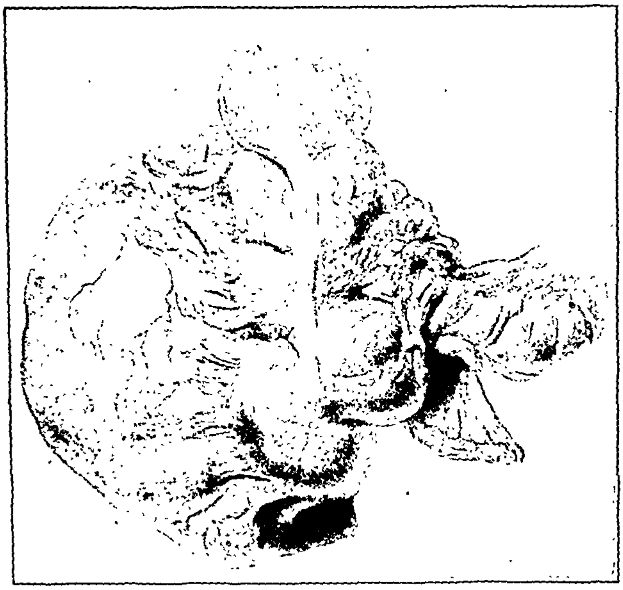

Fig. 1.—Anterior view of growth showing intimate relationship to cecum.

Wegner[1] classifies lymphangioma into (1) simple, (2) cystic, and (3) cavernous. In our specimen, Professor Welch found both cystic and cavernous forms of lymphangioma.

It is conceded by some writers that inflammatory changes may occur in these growths, and that the latter are detected in a large percentage of the cases before the patient attains the thirtieth year. In twenty-five of the fifty-two cases of lymphangioma of various parts of the body collected by Klemm,[2] the patient was under 25, while in thirty-eight cases the patient was under 40. Eleven were over 40 years of age.

Sudden elevation of temperature in cases of lymphangiomas is perhaps explained by inflammatory changes therein or by the intra-abdominal rupture of one or more of the cysts. Many of the cysts contain a cloudy substance. Kuttner[3] has discussed inflammation and pus formation occurring in lymphangioma. It is somewhat difficult to explain the inflammatory changes which have so frequently been noted in these growths. If they are of congenital origin why should inflammatory changes occur therein?

Hagenbach[4] has reported a very interesting case of symmetrical lymphangioma of the neck which was noted at birth. Thiebierge and Gottheil[5] have each reported a case of lymphangiomas of the skin, while various authors have reported lymphangioma of the mesentery, small intestine, fallopian tubes, diaphragm, etc.

The following very interesting case of cystic and cavernous lymphangioma (Welch) of the cecum is of especial interest to the surgeon in view of the fact that the clinical picture simulated so closely that of an acute infection of the appendix. It is also of interest owing to the unusual location of the growth.

REPORT OF CASE

History.—W. B., a lad aged 15, was admitted to the medical service of the St. Louis City Hospital, June 28, 1913, and on the following day the patient was transferred to my surgical service. The patient stated that previous to onset of the present illness he had enjoyed good health. His father had died from consumption and his mother and one sister were afflicted with the disease at the present time. The present illness began four days before with sudden severe pain in the region of the appendix. The pain was followed by vomiting and fever. Examination showed a pulse of 116, a temperature of 102, and a leukocyte count of 16,000. Examination showed the patient's expression somewhat anxious, the abdomen slightly distended in the region of the appendix, and considerable tenderness and rigidity in the region of the appendix. There was no enlargement of the inguinal glands. The left side of the abdomen did not show rigidity. Rectal examination failed to show a mass. A distinct mass however, could be outlined about an inch above and an inch and a half anterior to the superior spine of the ilium. The patient's right limb was retracted. The patient presented all the symptoms and signs of an acute infection of the appendix with abscess formation.

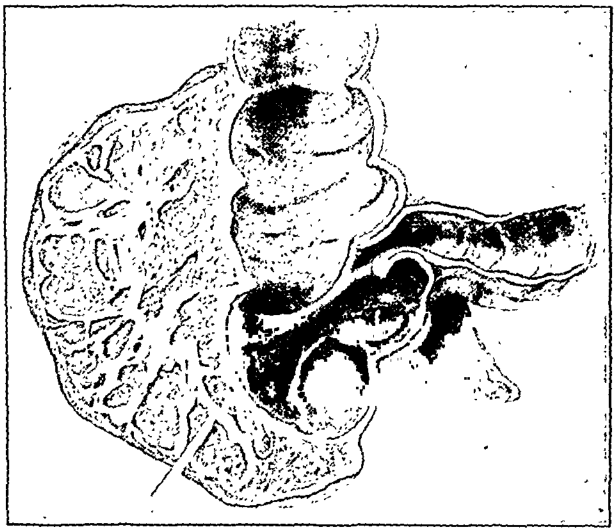

Fig. 2.—Longitudinal section of tumor and cecum.

Operation.—Immediate operation was performed. When the abdomen was opened through the usual incision along the border of the rectus muscle, a firm mass about the size of a man's fist was found situated to the outer side of and intimately connected with the cecum. The appendix was free and did not show evidence of inflammation. The mesentery glands were not enlarged. The growth was almost entirely covered with peritoneum. The cecum did not show infiltration or inflammatory change. There was no evidence of tuberculosis.

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* From the St. Louis City Hospital.
* Read at the Annual Meeting of the Western Surgical Association, Denver, Dec. 19, 1914.
1. Wegner: Arch. f. klin. Chir., 1877, xx.
2. Klemm: Virchows Arch. f. path. Anat., 1905, clxxxi, 541.
3. Kuttner: Beitr. z. klin. Chir., xviii.
4. Hagenbach: Deutsch. Ztschr. f. Chir., 1908, xciii, xciv, 477.
5. Gottheil: Jour. Cutan. Dis., 1909, p. 265.

The diagnosis of probable carcinoma of the cecum was made, and the cecum with the entire ascending colon and about 8 inches of the ileum were excised, and a side-to-side anastomosis by means of a Murphy button was made. The button was expelled on the seventh day, and the patient made an uninterrupted recovery. The patient was discharged, July 10. He is alive and in apparent perfect health at this time.

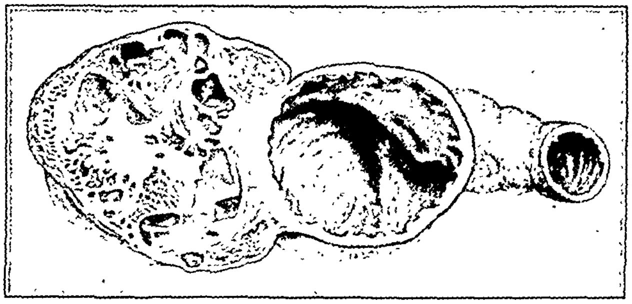
Fig. 3.—Transverse section of specimen.

Dr. F. B. Hall made a roentgenogram of the colon and terminal loop of the ileum, showing the present condition of the anastomosis.

PATHOLOGIC REPORT BY PROFESSOR WELCH

The specimen consists of a portion of the intestine with a tumor attached to the intestinal wall—hardened in alcohol. The intestine is the lower end of the ileum, 14 cm. in length, and the cecum 9 cm. in length, with the appendix. Partly enveloping the cecum and growing from its outer wall is a tumor measuring approximately 10 cm. in length (parallel with the axis of the gut), 6 cm. in thickness and 5 cm. in breadth. The tumor is, except over a part of the area, invested with peritoneum. The shape is irregularly oval with a somewhat irregular, nodular outer smooth surface.

Upon section the tumor presents a variegated appearance and is seen to be composed of a solid part, apparently connective and adipose tissue, and of many larger and smaller cysts and channels. The cysts vary from those just visible to the naked eye to those 2 cm. in diameter. From some the contents have escaped, others contain clear gelatinous material, and others blood either fresh or altered in color. The walls of the cysts in general are thin and smooth, but some show projections and suggest fusion of adjacent cavities.

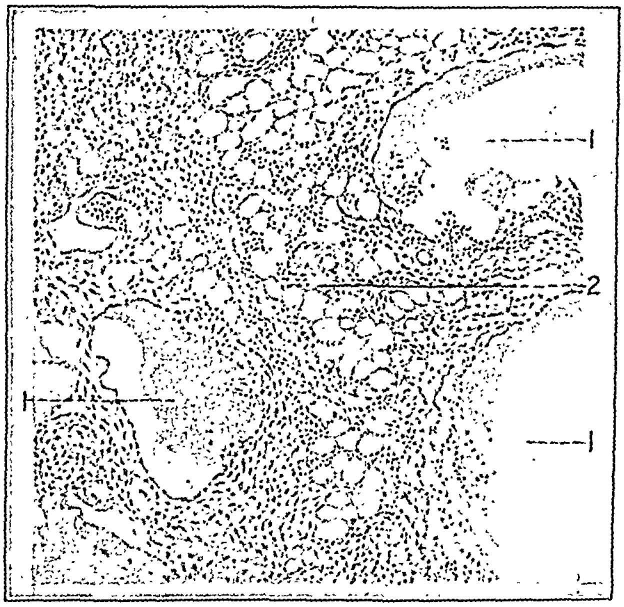

Fig. 4.—1, Lymph spaces, surrounded by edematous connective tissue (2), and infiltrating fat.

The solid tissue is in places hemorrhagic, in other places grayish and firm, or with the appearance of fat.

The tumor is intimately incorporated with the outer wall of the cecum, from which it cannot be detached. It has not invaded the mucous membrane, which is intact.

Microscopic Examination.—The cystic and canalicular spaces are seen to be dilated lymphatic vessels lined by endothelial cells. The contents vary, being sometimes, especially in the smaller spaces, homogeneous, and in others containing fibrin, leukocytes and red corpuscles in varying proportions. The leukocytes are mainly lymphocytes, and some of the lymph cavities are completely filled with these cells. Other cavities contain only or chiefly red corpuscles. The walls of the cysts and dilated vessels show bundles and detached strands of smooth muscle, often much hypertrophied.

The tissue between the cavernous spaces and channels is fibrillated connective tissue, or in places, adipose tissue. It is partly doubtless the preexisting tissue, but much of it is of new formation. In places it is delicately fibrillated and edematous; in other places more densely fibrous. A notable feature is the presence of smooth muscular cells, often hypertrophied not only in the walls of the lymphatic and blood vessels, but also scattered in the intervening tissue. Here are also fusiform and stellate fibroblasts.

Accumulations of lymphoid cells are present not only within the cysts and channels, but also in their walls and likewise in the intervening stroma. There are more or less extensive extravasations of blood, mostly fresh, both within the lymph spaces and in the tissues.

The cystic dilatations are in places so numerous as to give a honeycombed appearance to the sections; in other areas the tissue is more solid, but throughout the new growth such dilatations exist. Sections which include the junction of the tumor and the cecum show that similar, although narrower, dilatations of the lymph vessels occur in the submucous, muscular and subserous coats.

There is proliferation of the endothelium of the peritoneum, and considerable new growth of connective tissue and cellular infiltration in the serous membrane immediately adjacent to the tumor. The lymphatic vessels, frequently dilated, are filled with lymphocytes.

The same colloid or coagulated material present in the lumina of the lymph cysts can sometimes be recognized in the meshes of the tissue composing the solid part of the tumor. Fibrillated fibrin is also present in some places in the tissue.

Diagnosis.—Cystic cavernous lymphangioma.

Remarks.—To what extent, if any, there is an actual new formation of lymphatic vessels it is difficult to say. It is possible that all are preexisting or these with lymphatics formed in the new tissue. The fibrous tissue and muscular cells between the lymphatics are partly of new formation, and perhaps the tumor might be regarded as a fibromyolymphangioma, but it seems unnecessary to interpret the growth as other than composed essentially of dilated lymphatic vessels accompanied, as is usual in lymphangiomas, with some new formation of connective tissue and accumulation of lymphoid cells. New growth of smooth muscle is common in lymphangiomas, although in the present instance the development of the smooth muscle cells at a distance from the lymphatic vascular walls is a notable feature.

The most plausible explanation of this type of lymphangioma refers it to some error in congenital development.

There seems to be no active infectious inflammation, although chronic inflammatory changes are present. As regards the general interpretation of lymphangiomas as inflammatory in origin, that is another matter which relates to the general theories of this form of neoplasm. I am personally more inclined to the hypothesis of congenital origin for neoplasms of the type in this case.

There are extensive extravasations of blood, both fresh and old, but I do not regard these as essential features so far as the diagnosis of the primary condition is concerned.

Shortly after I received the foregoing report, Professor Welch wrote me as follows:

> I have examined further sections from a piece which I cut from the tumor. There is nothing significant to add. The formation of masses of lymphatic tissue, growing in a polypoid form into the lumina of some of the cysts, was more noticeable, but I think that I spoke of such lymphatic tissue in my report to you. This speaks for new formation of lymphatic vessels, but is not conclusive. In fact, in many cases it is impossible to say whether the cysts are from preexisting lymphatics or from newly formed ones, and this you will find discussed in most of the articles on the subject.
>
> The new sections show partial organization of the coagulated contents in some of the cystic dilatations. The hypertrophied muscle in the walls of the cysts and channels is conspicuous, as also are dilated blood vessels. Of course, there is a good deal of chronic inflammatory change, as I have already noted.

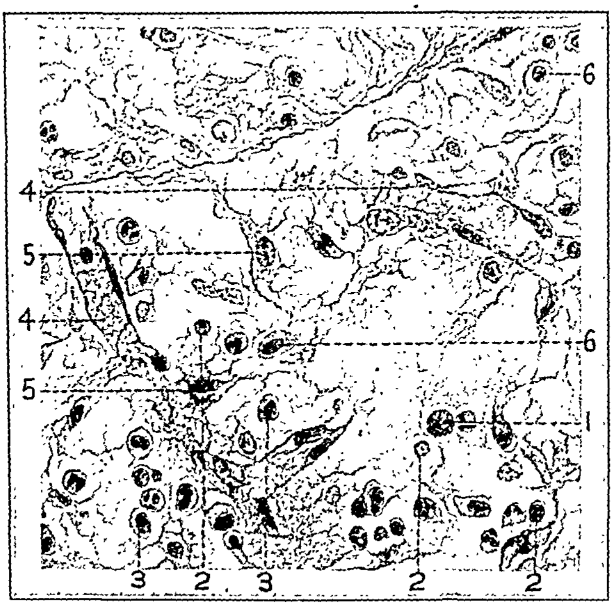

Fig. 5.—High power picture, showing character of connective tissue stroma. 1, Eosinophil cell; 2, lymphocytes; 3, plasma cells; 4, newly formed capillaries; 5, fibroblasts; 6, large mononuclears.

COMMENT

The case of lymphangioma herein reported is of especial interest to the abdominal surgeon because of its close proximity to the appendix and the infrequency of its occurrence in the colon. Hildebrand[6] has expressed the opinion that lymphangiomas are sometimes diagnos d as lipoma or fibroma.

The fact that a tumor of congenital origin may become so intimately connected to the cecum and be subjected to certain changes which manifest themselves by high leukocyte count, severe abdominal pain, vomiting, high temperature and, in fact, the usual clinical manifestations of an infected appendix, is worthy of careful consideration. Hertzler[7] and other writers have expressed the belief that these tumors are of inflammatory origin.

I am especially indebted to Dr. W. W. Grant for his interest in the case; also to Professor Opie and Drs. Thomas and Tiedemann of Washington University, as well as to Dr. Hertzler of Kansas City, for valuable assistance. My indebtedness to Professor Welch of Johns Hopkins is evidenced by his pathologic report.

4826 Delmar Boulevard.

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[6] Hildebrand: Koenigs Lehrbuch der Chirurgie, iv, Allgem. Chirurgie, p. 380.

[7] Hertzler: Perso ter.

Taking Adv ge of a Fellow.—"Would you enjoy your dinner if yo v bedbugs, fleas, roaches or spiders crawling all ov e foodstuffs? Yet this form of vermin is comparati clean in comparison with flies. Prepare now to swat t first fly you see in the coming spring."—*Wisconsin Sta Board of Health Bulletin.*

THE INTRAVENOUS USE OF COLLOIDAL (GELATIN) SOLUTIONS IN SHOCK

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I. INTRODUCTION

Periodically in medical and surgical practice we are brought face to face with a series of signs and symptoms that are in essence the expression of an abnormally low blood pressure, and which, when sufficiently marked, serve to kill a patient.

Not alone is the list of pathologic states in which a low blood pressure is observed very long, but the explanations given by different authors as to why the low blood pressure exists in any given state are very different. From a therapeutic point of view, however, this ground is held in common by all authors: They are agreed that a saving of life is intimately associated with, or rendered possible only by our success in raising the blood pressure, and keeping it up until such time as the patient himself succeeds in overcoming the conditions which are responsible for the low blood pressure.

Simple as it would seem to attain this end, its accomplishment practically is still a matter of debate. The problem involved is perhaps best presented if we consider the effects of simple hemorrhage. If by accident or otherwise, one of the larger vessels in man or a laboratory animal is opened, we observe following each other in rapid succession and in the course of a very few minutes all those alarming signs which reach their climax in death.

When now we try to say why this occurs, it is quickly brought home to us that the most serious mischief done by the hemorrhage does not reside in a great loss of red blood corpuscles or in a loss of certain of the chemical constituents found in the blood, say the hemoglobin or certain salts, but in a diminution in the volume of the circulating blood. The proof for such a conclusion is easily brought, for to protect or save an animal from the effects of hemorrhage it is not necessary to transfuse blood; but transfusion with water containing various salts (so-called "physiologic salt solution," "Ringer solution" or "Locke solution") may do. In fact, the dangers incident to transfusion of whole blood have made medical men in practice depend more and more on salt solutions of various kinds and less on the transfusion of blood itself.

But even though salt solutions of various kinds work excellently, they do this for only a limited time. In other words, it is too often noted that while a physiologic salt solution or a Ringer solution produces immediately brilliant results, this effect wears off in an hour or two, so that the individual who has been roused from the threatening effects of a great hemorrhage begins to sink again, and even though we repeat our injection, the improvement in patient or animal is again only temporary.

When we ask why this occurs we have no difficulty in finding the answer. The injected salt solution does not remain in the blood vessels. The evidence for this is perfectly clear. Not only does the blood pressure, which we have brought up after the hemorrhage, slowly fall again, but the fluid that has been injected appears as urine, or it is taken up by the tissues (an edema develops), or both. Clearly, if the water could be kept in the blood vessels, the temporary effects following the injection of salt solutions could be made more permanent.

This brings us to the heart of the problem. Why is a salt solution not retained in the blood vessels of an animal, or, put in another way, why does a circulating liquid like blood remain in the blood vessels? Why does blood not suffer the same fate as a salt solution and be lost from an animal as urine or be absorbed into the animal's tissues?

As is self evident, a correct answer to this question is not only of general biologic interest, but also constitutes the basis on which must be built the principles underlying the whole problem of perfusion as practiced for *any cause whatsoever in a* linical case.

The blood (or the lymph) remains in he blood vessels because it contains no 'free" water—all the water in it is held as hydration water) in combination with he colloids present here. A salt solution apidly disappears from the vascular sysem for the reverse reason, in other vords, because this does contain "free" vater.

The detailed experimental proof for the orrectness of this reasoning was brought ome time ago.[1] I review here a few xperiments which illustrate our contenions, after which I shall discuss the results vhich have been obtained in human cases n utilizing the principles learned on nimals.

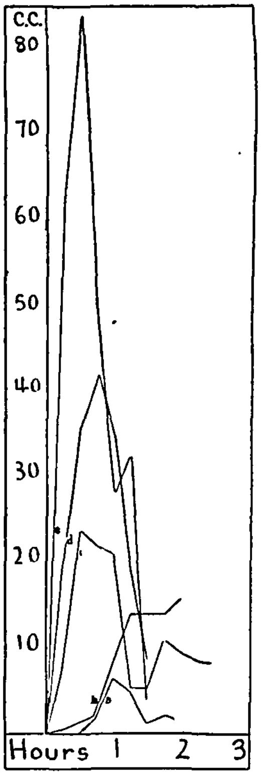

Chart 1.—Urinary secretion in a rabbit; *a*, normal; *b*, *c*, *d*, *e*, urinary secretion after injection of the same volume (125 c.c.) at the same rate of progressively more concentrated sodium chlorid solutions.

II. EXPERIMENTAL DATA

1. If we take a rabbit quietly from its age, *tie it comfortably into an animal* older and catheterize it with a small soft ubber catheter, we get a urinary secretion lat is represented graphically in the lowermost curve (*a*) of Chart 1. This, as all he other curves, is obtained by plotting time along the horizontal (in fifteen-minute intervals), and the number of cubic centimeters of urine secreted in each of these intervals on the vertical.

Let us now see what is the effect on this secretion of injecting intravenously at a uniform rate (10 c.c. every five minutes) an amount of differently concentrated sodium chlorid solutions (about 125 c.c.) which equals in volume the circulating blood in the animal. The result is indicated in the remaining curves.

In Curve *b* is shown the effect of injecting a one-eighth molecular (0.729 per cent.) sodium chlorid solution. As is readily apparent, the injection of a weak salt solution is quickly followed by an increase in the urinary output.

Curve *c* shows the effect of injecting the same volume of a salt solution that is more nearly "isosmotic" or "isotonic" with the tissue fluids of the rabbit—namely, a 0.92 per cent. sodium chlorid solution. We have no difficulty in seeing that the urinary output is under such circumstances still further increased. Also we notice that the effect of this solution on the secretion occurs earlier, even though the quantity of solution injected and the rate of injection are the same as in the previously described experiment.

Curves *d* and *e* show the effect, respectively, of injecting one-fourth molecular (1.459 per cent.) and one-half molecular (2.909 per cent.) sodium chlorid solutions intravenously. Evidently, with the injection of a constant volume of water at a constant rate, the loss of water from the body occurs the more rapidly, the higher the concentration of salt injected along with the water. Little or none of the water that is injected is retained, and if enough salt is injected with the water, even more water is lost by the animal than is injected.

Let us turn now to the interpretation of these simple experimental facts.

The whole animal, that is, all his tissues, *including the blood and lymph*, is composed of a system of colloids which under normal circumstances are saturated with water.[2] This system of colloids cannot take up any water or liberate any, except as it first suffers changes of a chemical or physicochemical character that either increase or decrease the capacity of these colloids for water. If the system of colloids composing the body is saturated with water, then clearly it cannot take up any more of this substance, and so if we inject "free" water intravenously in the form of a "physiologic" sodium chlorid solution, this cannot be retained in the body. It escapes as urine. If, instead of doing this in an experimental animal, we have employed this procedure in a patient suffering from hemorrhage, the result and the interpretation of the result are just the same. The good effects on the patient resulting from filling up his blood vessels with salt solution can be only temporary, for the water is "free" and escapes shortly after the injection as urine.

But why does a strong salt solution make the water come out as urine sooner than a weaker solution, and why in a greater amount?

It has generally been held that this is because the salt "stimulates" the kidney cells in some mysterious way. Aside from the fact that this means nothing, the explanation is really simpler. The salt decreases the capacity of the body colloids (*the protein colloids*) *for holding water, and this the more, the higher the concentration of the salt.* The higher the concentration of the salt in our solution, the higher must this therefore be in the blood, and secondarily (after diffusion) in all the tissues of the body. In injecting a strong salt solution we therefore not only supply free water as before, but by increasing the salt concentration in the blood and tissues, we make the colloids here give up water. This "free" water is then added to that already "free" in our injection mixture, and so the urinary output is increased *pari passu* with every increase in the concentration of the salt in the injected fluid.

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[1] Hogan, James J., and Fischer, Martin H.: On the Theory and Practice of Perfusion, Kolloidchem. Beihefte, 1912, iii, 385.

[2] Fischer, Martin H.: Physiology of Alimentation, New York, John Wiley and Sons, 1907, pp. 186 and 267; Am. Jour. Physiol., 1907, xx, 330; Arch. f. d. ges. Physiol. (Pflüger's), 1908, cxxv, 99; Kolloidchemische Beihefte, 1910, i, 93; ibid., 1911, ii, 304. A running account and further references to the literature may be found in his Oedema and Nephritis, Ed. 2, New York, John Wiley and Sons, 1915.

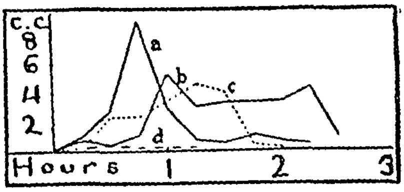

Chart 2.—Urinary output in rabbits when 125 c.c. of water are injected *in form of blood serum.*

2. We can at once test the soundness of our reasoning by substituting for the plain salt solutions one in which the solvent (water) is not free, but combined with a colloid.

The natural fluid that has these characteristics is of course, if our reasoning is correct, the blood, and so we should expect that the injection of no amount of blood would yield any increase in urinary output. That it does not is a familiar fact in physiology since the experiments of E. Ponfick[3] and R. Magnus,[4] only the interpretation of this observation has been lacking.

Chart 2 shows how the injection of a solution in which the water is combined with a colloid does not yield any increase in urinary secretion (it remains in the blood vessels). In these experiments we did not use whole blood, but sterile blood serum. In spite of the fact that the same amount is injected as in the experiments with salt solution, the curves showing the urinary output are identical with those which are obtained from normal animals which have simply been comfortably tied into an animal holder.

3. It might now be argued that blood has something specific about it that makes it remain in the blood vessels, and that it does this not simply because the water in it is held in combination with the blood colloids. This criticism is met in Chart 3, which shows the results of experiments in which water is again injected intravenously, only this time in combination with a colloid foreign to the blood, namely, gelatin. As the two curves show, a 1.5 to 2.5 per cent. gelatin solution, when injected intravenously, remains in the blood vessels and does not yield any increased urinary output.

4. If the foregoing experimental facts are correctly interpreted, it is of course to be expected that we can at will make an animal retain water in its blood vessels or give this up, depending on whether the water so introduced is given in combination with a colloid or "free." This may be proved in one and the same animal. The results of injecting water in combination with a colloid as blood serum or a gelatin solution, and "free" water as in a salt solution, are shown in Charts 4 and 5. While no increase in urinary output is observable in the first period of these experiments in which blood serum or gelatin is injected intravenously, the urinary secretion rises as soon as a salt solution is substituted for the serum. The curves are clearly the syntheses of the results obtained before in separate animals when we injected colloidal solutions or salt solutions alone.

III. CRITICAL REMARKS

To those who are disinclined to accept the teaching that the living animal represents simply a series of colloidal phases that are saturated with water, and that secretion becomes possible (in the main) only as some of this water is freed (as by increasing the salt concentration in the protoplasm of the animals), or "free" water is injected from without, these experiments, in which we take a secretion of urine or its absence as evidence that an injected fluid has remained in the blood vessels or not, may not be entirely convincing. We must meet their objections.

Mere examination of the animals while they are being injected with a colloidal solution or with a salt solution indicates that the fluid remains in the blood vessels in the former case and escapes from these in the latter. Inspection of the more superficial blood vessels (veins and arteries of the skin and ears, the carotids and the femorals) shows that, when a colloidal solution is injected, these become progressively fuller and remain so; as the vessels become more and more filled, the amplitude of the pulse waves becomes smaller and this effect persists. Even when we inject such a non-poisonous fluid as blood serum we can only inject a limited volume before we notice that the respiration of the animal is becoming embarrassed, and if we persist, the animal dies from mere overfilling of the blood vessels, and the mechanical hindrance that this offers to the maintenance of a circulation of the blood.

Intravenous injection of a salt solution is not followed by such consequences. Here the filling of the blood vessels is not so apparent, and the effect is not lasting. The respiration does not become embarrassed, and if we have previously overfilled the blood vessels with a colloidal solution and so induced a dyspnea, this is likely to improve if a strong salt solution is injected.

Further, if we have produced a (presumably) fatal hemorrhage and then saved our animal by the injection of blood serum, we can kill it subsequently by giving strong salt solutions which again decrease the volume of blood in the blood vessels.

That only the colloidal solution remains in the blood vessels is further brought home to us when we examine the injected animal at necropsy. In an animal that has been injected with a salt solution, especially if it has been a strong salt solution, the heart is normally distended with blood, or may appear underfilled, as do all the larger blood vessels. If the organs (liver, kidney, etc.) are cut across, they bleed a little or may be quite dry. If, on the other hand, a colloidal solution has been injected, the heart and large vessels are distended with blood, and when one of the parenchymatous organs is cut across, the blood fairly wells out of it.

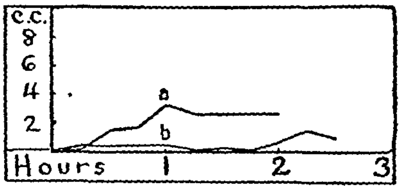

Chart 3.—Urinary output in rabbits when 125 c.c. of water are *injected in colloidal combination with gelatin.*

We know that the colloidal solution remains in the blood vessels from yet other facts. It simply cannot get out. Its loss from the blood vessels is entirely analogous to the absorption of such fluids from any of the serous cavities or the gastro-intestinal tract.

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[3] Ponfick, E.: Virchows Arch. f. path. Anat., 1875, lxii, 277.

[4] Magnus, R.: Arch. f. exper. Path. u. Pharmakol., 1901, xlv, 210.

Water injected into the peritoneal cavity in combination with a colloid (blood, lymph, ascitic fluid, gelatin solution, agar-agar, native egg white, etc.) cannot be absorbed until it has been separated from the colloid, or the colloid has been removed (digested). The same is true for the absorption of the water out of these solutions when introduced into any other serous cavity or into the lumen of the intestine.[5]

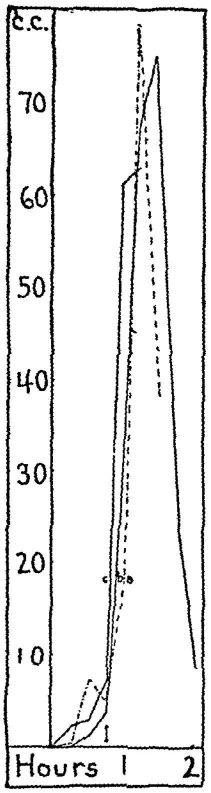

Chart 4.—Urinary secretion when salt solution follows injection of blood serum.

Finally—what will seem most convincing to many physiologists and clinicians—direct blood pressure measurements show that salt solutions do not remain in the blood, while water in combination with a hydrophilic colloid does. As is known to everyone, the rise in blood pressure which follows the intravenous injection of a 0.9 per cent. sodium chlorid solution into a normal rabbit is only temporary. In a few minutes to half an hour, the pressure has dropped back to normal. Accompanying it we have an increased urinary output. But if the same amount, say the equivalent of the calculated volume of blood in the animal, is injected in the form of blood serum or gelatin solution, the rise in arterial blood pressure (amounting to from 10 to 25 mm. of mercury) remains for hours; and in this case no increase in urinary output is noted. Especially marked are these findings if we first induce a state of low blood pressure in our animals by hemorrhage. While salt solutions give a temporary rise in blood pressure (and improvement in the general symptoms consequent on the hemorrhage), we obtain a permanent rise only if we inject a (hydrophilic) colloidal solution.

IV. PRINCIPLES OF PERFUSION IN HUMAN CASES

The foregoing experiments were made in order to formulate more clearly the principles that must guide us in combating the various pathologic conditions encountered clinically which are characterized by an abnormally low blood pressure of such grade that it in itself threatens life.

Such a low blood pressure may result from any one or any combination of the following causes: (1) a decrease in the force or the number of the heart beats; (2) a diminution in the volume of the circulating blood; (3) an increase in the capacity of the blood vessels to hold blood. Or to illustrate this in ordinary clinical terms, a low blood pressure may result from a weakened heart muscle (myocarditis); from a hemorrhage, or a loss of the watery constituents of the circulating blood (oligemia); from a vasodilatation due either to a loss of tone in the blood vessel walls themselves or to impairment of the *nervous* (so-called vasomotor exhaustion) or chemical mechanisms (loss of the active principle of the suprarenal bodies from the blood) which are in part or wholly responsible for the maintenance of this tone.

In this paper I shall disregard the question of failure of the heart itself as responsible for a pathologically low blood pressure, and discuss merely the principles involved in our ordinary therapeutic attempts at restoring a low blood pressure to normal *by introducing fluids intravenously.*

It is clear from what was said above that only a proper colloidal solution can be injected intravenously with the hope that it will remain in the blood vessels and so maintain any rise in blood pressure gained by such means over any considerable period of time. But what colloidal solution may we or is it best to inject?

After what has been said it must be self evident that the best transfusion fluid is whole blood. But the obvious difficulties and dangers attendant on the carrying out of a man-to-man blood transfusion limits its usefulness. The liquid of next choice for perfusion is that which most nearly approaches blood, namely, blood serum. Human blood serum is, however, difficult to obtain. All the possibilities of obtaining a human colloidal solution that will stay in the blood vessels resides in the use of hydrocele fluid and of the ascitic accumulations from patients with heart disease. Such fluids can be drawn when opportunity offers into sterile containers and the serum separated from the fibrin clot by the methods employed in collecting horse serum. The use of the serum from human milk is also to be counted in here. Certain dangers are, of course, attendant on the use of any of this human material, but on these not too much emphasis is to be laid, for perfusion is not at present employed for patients who are not desperately ill.

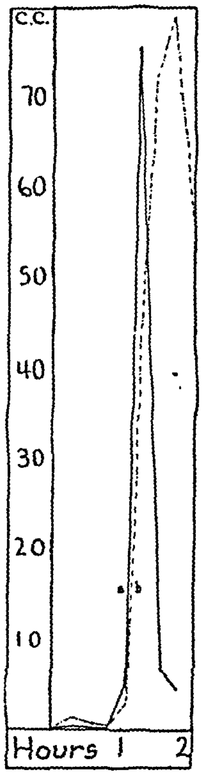

Chart 5.—Urinary secretion when salt solution follows injection of gelatin.

It was to meet these various objections that a colloidal solution suitable for intravenous injection in clinical cases and obtainable from other than human sources was sought. The materials available for such use are limited, but as our previous experiments on animals and the clinical abstracts given below would tend to show, properly prepared gelatin solutions may be used intravenously without danger.

Preparation of Gelatin Solution for Intravenous Use

Twenty-five gm. of the purest gelatin,[6] 1.5 gm. of sodium chlorid and 100 c.c. of distilled water are placed in a flask and boiled for fifteen minutes. The resulting solution is filtered through heavy paper in a hot funnel and then autoclaved for an hour at 124 C. (255.2 F.). It is then chilled in an ice-box. The gelatin has the proper colloidal qualifications if under these circumstances it solidifies. In this form the gelatin is kept until needed. In order to prepare the transfusion mixture, the flask of gelatin is warmed until it melts, when it is added to 1,000 c.c. 0.9 per cent. sodium chlorid to which have been added 2 gm. of sodium carbonate crystals ($Na_2 CO_3$ 10 H_2O) all warmed to body temperature.

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[5] Fischer, Martin H.: Kolloidchemische Beihefte, 1911, ii, 304; Lancet-Clinic, June 22 and 29, 1912.

[6] The gelatin must be fresh and of high quality. Ordinary and old gelatin not only does not gel properly, but is often so rich in protein decomposition products as to be dangerous for intravenous use. I have found the Non Plus Ultra brand of the Deutsche Gelatine Fabriken, and the "Highest Quality" of the Heidelberger Gelatine Fabrik (Stoess & Co., Heidelberg) to do very well.

The instructions as here given must be carefully followed, otherwise trouble will be encountered from the fact that, as ordinarily done, the heating necessary to sterilize properly the gelatin decomposes it and so destroys the very properties for which it is used. When heated in the presence of a sufficient concentration of salt, this decomposition is practically avoided.

The results that have been obtained by the use of such gelatin solutions intravenously are best illustrated by a few clinical histories. I am indebted to a number of my colleagues for permission to see their patients, and wish here to express my acknowledgments. Most of all I am indebted to Dr. B. F. Alden, who was the first to try the gelatin solutions intravenously in a series of injury cases in which death seemed the only prospect.

Case 1. (Dr. B. F. Alden, San Francisco).—A. F., aged 39, Italian laborer, had always been in good health. March 3, 1913, he entered the French Hospital, the victim of a severe accident which had occurred the day before. A tree limb had fallen across his leg from a great height, crushing the upper end of the right tibia, and the head and lower third of the shaft of the femur. All structures beneath the skin, with the exception of the semitendinosus tendon had been completely severed. There existed also a compound comminuted fracture of the right tibia, fibula and ankle bones, which, however, did not bleed as all vascular communication had been severed above. The left tibia and fibula were fractured. Hemorrhage had been excessive, as practically no attempt had been made to control it. The man had been brought from the country and did not get into the hospital until twenty-four hours after the injury. The patient was in a state of profound shock. He was almost exsanguinated and showed a small, rapid, soft radial pulse, with cold extremities, excessive thirst, and shallow and rapid respiration. Blood was oozing from the lacerated wound about the knee. Strychnin, normal salt solution subcutaneously, gelatin subcutaneously, and the usual hemostatic measures were all used without improving the general state of the patient. Under ½ grain tropacocain anesthesia, administered intraspinally, the integument—which, with a single tendon alone united the crushed leg to the patient—was severed. The clotted blood and crushed bone were removed, and the large vessels in the stump were rapidly ligated; the wound was dressed and the patient rushed to bed, where his head was placed low and surface heat was applied. The pulse could now no longer be obtained at the wrist and, as death seemed imminent, it was felt that an intravenous injection of a gelatin solution was justified. Five hundred c.c. were given. As there was no radial pulse at the beginning of the injection, an accurate blood pressure reading could not be made. The needle of a Tycos instrument oscillated at 90 mm. While the injection was being made, the radial pulse gradually returned, and an hour later the blood pressure measured 125 mm. During the same time the pulse rate dropped from 130 to 88. The pressure was maintained, rising slightly from day to day, until on the tenth day after the infusion it measured 145, while at the same time the pulse gradually dropped to 78. The pressure now gradually declined to 125 mm. and the pulse to 72. The patient made an uneventful recovery.

Case 2. (Dr. D. N. Richards, San Francisco).—Mrs. E. S. R. entered St. Francis Hospital, July 2, 1913, at 5:30 p. m., at full term and in labor. Regular pains continued until 4:15 a. m., when ether was given and she was delivered of a female child. The placenta was expelled at 5:10. This was followed by profuse bleeding, which continued until the patient was practically exsanguinated. At 6 a. m. the radial pulse could scarcely be felt. The pulse was 140, the blood pressure (verified by Drs. Richards and Fraser) 58. As the patient's condition was considered alarming, an intravenous injection of 750 c.c. of gelatin solution was given. The blood pressure rose to 118 mm. within an hour, the pulse fell to 100, and the patient's general condition improved greatly. For the following four days the pressure varied between 105 and 110 mm., the pulse between 85 and 100. The patient made a good recovery, leaving the hospital July 17.

Case 3. (Dr. B. F. Alden, San Francisco).—J. P. G., aged 46, Frenchman, was operated on by an associate, Feb. 7, 1913, for a ruptured appendix. A suppurative peritonitis with two fecal fistulas, one into the cecum, the other into a loop of the ileum, resulted. April 15, the openings in the intestine were repaired with Connell's interrupted sutures of silk covered by continuous Lembert catgut sutures. No excessive bleeding was noticed at the time of the operation, but one of the Connell sutures must have lacerated a large vessel, from which an active hemorrhage into the lumen of the intestine resulted. April 16, a lowered blood pressure with symptoms indicative of hemorrhage were observed. The outer wound was opened and the intestinal site explored, but as no serious bleeding was found, the intestine was not disturbed. The wound was repacked with gauze. On the morning of April 18, a large bowel movement of coagulated blood was observed. In the meantime the patient had declined steadily. Ten c.c. of horse serum were injected subcutaneously. A second blood stool containing a large amount of fresher blood occurred, when another 10 c.c. of horse serum and 300 c.c. of physiologic salt solution were given. The patient continued to decline, exhibiting all the alarming symptoms of active hemorrhage. At 3:30 p. m., April 18, the patient was reported dying. He was pulseless at the wrist. Oscillations in a Tycos instrument were observed at 80 mm. An immediate intravenous injection of 500 c.c. of gelatin solution was ordered. Half an hour later the patient's pulse had dropped from 156 beats to 138 and had gained in volume, strength and regularity. The blood pressure rose to 110 mm., and by the following morning it was 140 mm. This pressure persisted, while the pulse rate within three days gradually fell to 74. An uninterrupted convalescence followed, and at the present time this patient is well.

Case 4. (Drs. W. B. Coffey and C. A. Walker, San Francisco).— Mr. B. entered St. Francis Hospital, July 26, 1913, having been ill for four days. The patient showed marked evidences of general intoxication. Examination revealed tenderness in the region of the appendix. An immediate operation was performed which revealed a ruptured appendix with marked circumscribed peritonitis. The patient showed marked shock following the operation. A 0.9 per cent. sodium chlorid solution was dripped into the rectum throughout the day following the operation. The patient did not rally. The pulse became progressively weaker and rose to 130, while the blood pressure fell until at 9:30 p. m. it measured 86 mm. As death seemed the only outcome, gelatin solution was given intravenously. This was started at 9:50, the blood pressure at this time measuring 85 mm., the pulse 128. The following records show the rise in blood pressure during the injection:

After 150 c.c. it was 96.
After 250 c.c. it was 110.
After 400 c.c. it was 128.
After 500 c.c. it was 132.

As this pressure was deemed sufficiently high, the injection was stopped. The patient's general condition improved at once, the radial pulse filling out and the rate dropping to 90. The following morning the blood pressure was 119, the pulse 90. That afternoon the pressure rose to 128, while the pulse dropped to 85. The pressure remained, while the pulse gradually returned to normal. The patient made an uninterrupted recovery.

Case 5. (Dr. B. F. Alden, San Francisco).—M. C., aged 36, a native of France, because of an empyema of the left thorax following a lobar pneumonia, was transferred to the surgical service from the medical side, May 20, 1913, for a thoracotomy. Before he was brought to the operating room the patient showed the weak, thready pulse, rapid respiration, extreme pallor, drawn face, and cold and clammy extremities, ears and neck of profound shock. When placed on the operating table, the patient seemed *in extremis,* and was practically pulseless. Because of this, no proper blood pressure reading could be made. The anesthetist advised against the use of an anesthetic. As it was agreed that the patient would die, 500 c.c. of the gelatin solution were injected into the median basilic vein. The incision was made without anesthetic, as the patient was unconscious. Within ten minutes after the beginning of the perfusion, a perceptible radial pulse was noted, and this gradually improved in quality. A section of the eighth rib was now removed, and drainage of the pleural cavity effected. The patient recovered consciousness while on the operating table, and the blood pressure rose to 118 mm. It continued to mount until it reached 154 the following day. At the same time the pulse rate fell from 135 to 106. Two days later the pressure sank to 106, while the pulse mounted to 136. As the drainage was found to be inefficient, by reason of adhesions in the pleura, the patient was reoperated on under nitrous oxid and oxygen anesthesia. This was done without difficulty. The pressure then again rose to 126 mm. and remained there, while the pulse fell back to 100. At the present writing this patient has so far recovered as to be up and about.

Case 6. (Dr. B. F. Alden, San Francisco).—M. B., aged 54, a Frenchman, for some time preceding his operation had been unable to take food owing to an almost complete stenosis of the pylorus secondary to a carcinoma. He refused operation until May 13, 1913, when his condition had grown so grave from starvation that operative interference hardly seemed advisable. The blood pressure was less than 95 mm. As a prophylactic measure he was given 500 c.c. of the gelatin solution intravenously. The pressure rose rapidly to 115 mm., and it was decided to attempt an exploratory incision. An inoperable pyloric carcinoma being found, a posterior gastrojejunostomy was performed. Throughout the operation and afterward the patient's pulse and pressure continued good. After the operation he improved rapidly, vomiting but once several days after. In the afternoon after his operation the blood pressure was 120, on the next day 136 and for four days more 150 to 160, after which it fell gradually to 128, where it remained. The pulse rate fell in this same period from 95 to 86, and then more gradually to 76. At present he is walking about in better health than for months past. This improvement is due, of course, to his ability to take food, but the surgeons concerned felt that the necessary operation was made possible only because the patient was first perfused with gelatin.

It can, of course, be foreseen that what may actually be accomplished through gelatin transfusion in any case of low blood pressure depends on the intensity, persistence and nature of the factors responsible for it. Viewed in this light, it is not remarkable that our experience thus far has seemed to indicate that cases of shock consequent on simple hemorrhage are most easily relievable. Even those of our patients who showed extreme degrees of anemia rallied. Shock consequent on injury or a surgical operation in the ordinary "clean" case seems to be controllable almost as easily. Least hopeful are the septic cases in which the low blood pressure is in large measure dependent on a heart suffering from the general intoxication. This is illustrated in Case 7.

Case 7. (Drs. W. B. Coffey and C. A. Walker, San Francisco). Mr. C., aged 32, a laborer, was brought into St. Francis Hospital at 1 p. m., July 25, 1913, with the diagnosis of a ruptured typhoid ulcer. He had had typhoid since July 1. It was felt that the patient could not live through an operation. The blood pressure was 65 mm., and as it was felt that the patient would certainly die, an intravenous infusion of gelatin solution was started at 2 p. m. After 300 c.c. had been injected, the pressure rose to 90 mm., after 400 c.c. to 96 mm., and after 500 to 99 mm. At this point the abdomen was opened under local anesthesia and found filled with fluid, fecal in character. The opening in the small intestine was quickly located and closed. The gelatin perfusion was continued during the operation, the blood pressure rising steadily even during operation as follows: after 600 c.c. had been injected it was 106 mm., after 700 it was 108 mm., after 850 it was 108 mm. This higher pressure continued until 6:10 p. m., when he showed signs of a rapidly falling pressure and then died.

Besides this patient, I have seen two others with toxemic shock who died. One was a woman suffering from a hemolytic streptococcus infection of the blood stream after a miscarriage; the other, an ileus in the course of a peritonitis secondary to a ruptured appendix. In the former we raised the blood pressure from 75 mm. to 118 mm., where it remained for two days, when the patient died. In the second the pressure was raised from 58 mm. to 124 mm. This patient also died.

As this paper deals only with the use of colloidal perfusion mixtures, I purpose discussing in a subsequent paper some additional methods at present available in the treatment of toxemic shock.

350 Post Street.

THE INFLUENCE OF CHANGES IN THE CHEMICAL ENVIRONMENT ON THE LIFE AND GROWTH OF TISSUES *

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In addition to the method which, with a view of analyzing the effect of experimental variations in the physical and chemical environment on the life and growth of tissues, I published in 1897, and which permits study of the life and growth of tissues in the test-tube, outside the body,[1] and with a later modification also inside the body — the latter serving as a living thermostat[2] — there exists another method of studying the influence of apparently slight chemical changes on life and growth of tissues, namely, that of comparing the growth of tissues after transplantation into the same individual in which it originated (autotransplantation) and after transplantation into another individual of the same species (homoiotransplantation) and after transplantation into other species (heterotransplantation). In 1902[3] and again in 1907[4] I showed that tumors which die after homoiotransplantation live usually after autotransplantation. It may happen that occasionally in such a tumor a small peripheral part may remain alive even after homoiotransplantation, but in the same tumor after autotransplantation the whole tumor remains alive. I drew on the basis of these experiments at that time the conclusion that the chemical constitution of body fluids differs in in different individuals of the same species. It was of interest to make a systematic study of the influence of these chemical differences on the life and growth of normal tissues. While a few observations recorded in the literature suggested that autotransplantation of tissues is sometimes more successful than homoiotransplantation, this problem had hitherto mainly been considered from the practical point of view of the surgeon without regard to its great theoretical significance as a study of the effect of a difference of chemical environment on tissue life and growth.

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* From the Department of Pathology, Barnard Free Skin and Cancer Hospital.

[1] Loeb, Leo.: Ueber die Entwicklung von Bindegewebe, etc., und eine Methode, isolierte Gewebeteile zu züchten, Chicago, 1897.

[2] Loeb, Leo.: Ueber das Wachstum des Epithels, Arch. f. Entwicklungsmechanik, 1902, xiii, 489.

[3] Loeb, Leo.: Jour. Med. Research, 1902, viii, 44.

[4] Loeb, Leo.: Jour. Med. Research, 1907, xvii, 299.

Without going into a detailed statement of our results, I wish here to report briefly some of our general conclusions which are based on our work and that of our collaborators, on the surface and subcutaneous transplantation of various kinds of skin, and on the subcutaneous transplantation of kidney, thyroid, uterus and testicle. While part of this work has been reported within the last six years, other publications will follow in the near future.

1. In the case of the majority of tumors and normal organs, some of the transplanted tissue remains alive and may grow after autotransplantation, while after homoiotransplantation it perishes. In the case of certain tumors, and perhaps in rare instances in the case of normal tissues, however, even after homoiotransplantation, transplanted cells may remain alive and in some cases grow.

2. In some of those tissues which after homoiotransplantation remain for some time alive, metabolic changes which represent a deviation from the normal can be shown to take place, and it may be assumed that those changes usually occur, even in cases in which at present we cannot demonstrate their existence. Thus, after surface homoiotransplantation of pigmented skin, an interference with the normal process of pigmentation can be observed,[5] after homoiotransplantation of thyroid the production of colloid is deficient.[6]

3. Different tissues show a somewhat different degree of resistance after homoiotransplantation (and also after autotransplantation). Gland tissue of the uterus, for instance, shows more resistance after homoiotransplantation than kidney tissue, and probably also more than unstriated muscle of the uterus. There exist also within certain limits differences in individual experiments, depending perhaps on a better mutual adaptation of the organs of one individual to the body fluids of another individual of the same species.

4. *After a first period*, usually lasting somewhat less than one week, in which no marked difference exists in the behavior of the autotransplanted and homoiotransplanted pieces, a gradual destruction of the latter sets in. In some cases, metabolic tissue changes taking place after homoiotransplantation may perhaps be of a sufficiently serious character to lead to a direct destruction of the transplanted pieces or prevent their recuperation from the injurious conditions caused by the process of transplantation. This may be sometimes so, perhaps, in the case of unstriated muscle of the uterus, or after homoiotransplantation of certain tumors. Furthermore, after transplantation into other species, the toxicity of the body fluids may injure the transplanted tissue to such an extent that death results. (In vitro the blood plasma of a different species seems to be relatively innocuous. We have, however, to consider that here, even if a toxic substance should be present in the body fluid, the quantity of it coming in contact with the transplanted tissue would be extremely small, while in the living body the blood stream would constantly carry new toxic substance to the transplanted tissue. We know that minute quantities of a toxic substance may exert a stimulating effect, where somewhat larger quantities paralyze and destroy.)

While the directly destructive effect of body fluids needs further investigation, there can be no doubt that a typical and frequent mode of destruction of homoiotransplanted (and sometimes of autotransplanted) tissues is of a different character. While the vitality of the tissues has not been essentially impaired after homoiotransplantation, and they may even grow, and the metabolic changes they underwent in the different chemical environment did not therefore markedly interfere with their power to live or even to propagate, these metabolic changes lead to a new condition in the host tissue, which secondarily brings about a destruction of the transplanted piece, namely, these metabolic changes cause (*a*) an increased activity on the part of small mononuclear cells (probably lymphocytes) and (*b*) a destructive activity on the part of the connective tissue of the host.

5. The mononuclear cells collect around the transplanted tissue, penetrate into it and destroy its cells. While in the autotransplanted tissue the immigrating fibroblasts remain in an active young state—if one wishes to use the latter designation—in the homoiotransplanted tissue the fibroblasts very soon form dense fibrous material which separates the transplanted parenchyma into small islands, compresses them and leads thus to their destruction. There is possibly also present a greater ingrowth of fibroblasts in the case of the homoiotransplanted tissue. We may conclude, therefore, that the metabolic changes taking place in tissues *after homoiotransplantation stimulate the activity* of the lymphocytes and cause the altered function of the fibroblasts which now produce fibrous tissue in large quantity. This destructive activity of lymphocytes and connective tissue in homoiotransplanted tissue—and under certain conditions also in other cases —we observed after subcutaneous transplantation of skin;[7] after surface transplantation of skin;[8] after transplantation of kidney, where the connective tissue changes are also very marked;[9] of thyroid,[10] and of uterus.[11]

6. The activity of lymphocytes and of connective tissue is to some extent independent of each other: while in many cases the two act together, in some cases the one prevails, in other cases the other.

7. In the case of certain organs as, for instance, the kidney, also pieces transplanted into the subcutaneous tissue of the own animal are attacked by lymphocytes and connective tissue. However, in the case of the kidney, the autotransplanted are attacked and destroyed at a later period than the homoiotransplanted pieces. In this case we *must assume that under the* abnormal conditions after transplantation into the subcutaneous tissue even in the same animal, such abnormal metabolic products are formed that an attack by the host tissue and a secondary destruction takes place.

8. The substance secreted by the corpus luteum which calls forth growth in the uterine mucosa may be active not only in the autotransplanted, but even under

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[5] Sale, Llewellyn: Arch. f. Entwicklungsmechanik, 1913, xxxvii, 248.
[6] Hesselberg, Cora: Jour. Exper. Med., February, 1915.
[7] Loeb and Addison: Arch. f. Entwicklungsmechanik, 1909, xxvii, 73; 1911, xxxii, 44.
[8] Sale, Llewellyn: Arch f. Entwicklungsmechanik, 1913, xxxvii, 248.
[9] Myer, Max H.: Arch. f. Entwicklungsmechanik, 1913, xxxviii, 1.
[10] Hesselberg, Cora H.: Jour. Exper. Med., February, 1915.
[11] Kerwin, W.: To be published.

the adverse conditions prevailing in the homoiotransplanted tissue. But in the latter case a weakening in the effect of the growth substance takes place. The injurious action of body fluids in the other individual detracts from the efficacy of the growth substance.

9. On the basis of these observations, we may formulate the following conception of the relations between different tissues: A certain metabolic activity on the part of parenchyma of various organs determines the attitude of lymphocytes and of fibroblasts toward the parenchyma. If the activity is normal, lymphocytes do not, or only to a slight extent, enter the parenchyma. The connective tissue is held in a definite state of activity. If within certain limits (which still permit the continued life and even growth of the tissue) the metabolic condition of the parenchyma becomes abnormal, the connective tissue in contact with the parenchyma loses its normal state of activity, produces fibrous bands (and perhaps the fibroblasts invade the parenchyma in larger number) and thus compression is exerted on the parenchyma, and cirrhosis caused and ultimately the transplanted tissue is destroyed. This is one mode in the production of cirrhosis. Under other conditions, the presence of actual defects in the parenchyma may under the guidance of stereotropic stimuli[12] also produce an invasion by connective tissue and thus lead to cirrhosis. We notice in certain mucous membranes that directly beneath the epithelium the connective tissue is richer in cells than elsewhere. This may, in conformity with the theory just presented, be due to the stimulating effect of the metabolism of the epithelium similar to that exerted by normal parenchyma on the connective tissue after autotransplantation.

A similar abnormal metabolic condition of parenchyma may perhaps also be produced in certain states of immunity, and thus it may be explained that in animals immunized against tumor growth, various mononuclear leukocytes invade or surround the tumors. On the basis of our theory, this would be a process secondary to metabolic changes resulting from the effect of substances produced in the animal through immunization and acting on the tumor cells, or directly produced through immunization in these tumor cells, the combination of this immune substance and the tumor cells influencing certain host cells in a manner comparable to that caused by parenchyma after homoiotransplantation.

Connective tissue and lymphocytes may therefore be regarded as organs of attack, lying quiescent under ordinary conditions, but exerting their efforts as soon as within given limits certain pathologic changes take place. While according to the view commonly held and mainly inaugurated by Weigert (so-called inflammatory) connective tissue growth accompanying round cell infiltration is of a regenerative character, destined to fill out actual defects or to take the place of cells markedly injured and unable to continue a vigorous life, our observation points to the conclusion that also tissues not essentially injured in their vitality and not markedly changed in their morphologic character may as a result of altered metabolic conditions influence lymphocytes and connective tissue in such a manner that cirrhosis and a partial or total destruction of the parenchyma results.

REPORT OF TYPHOID EPIDEMIC OCCURRING THREE MONTHS AFTER THE USE OF PROPHYLACTIC VACCINE

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During the early months of the spring of 1914 several cases of typhoid fever occurred in the Minnesota School for Feeble Minded and Colony for Epileptics at Faribault. An exhaustive search through the use of the Widal test in some 1,601 inmates disclosed the presence of a positive reaction in twenty-eight. Further investigation by means of isolation tests revealed the fact that eight of these inmates were active carriers.

To prevent the development of new cases, the administration of typhoid prophylactic was begun immediately. A total of 1,520 patients were inoculated in the usual manner. All patients having given positive Widals were isolated until the completion of the prophylactic treatment. New cases ceased to develop following the administration of the prophylactic until the outbreak of the current epidemic.

In order to determine the agglutinating property of the blood, following the prophylactic treatment, specimens of blood were taken from all who were inoculated. Complete results showing reactions in males and females, and the percentage are given in detail in Table 1.

TABLE 1.—RESULTS OF WIDAL TESTS MADE FOLLOWING IMMUNIZATION

	Male		Female		Total	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Positive reaction....	262	18.8+	215	15.4+	477	34.3+
Atypical reaction....	130	9.3+	135	9.7+	265	19.0+
Negative reaction...	317	22.8+	331	23.8+	648	46.6+
Total Widals taken	709	51+	681	48+	1390	100

About the middle of September, three months subsequent to the completion of the administration of the antityphoid vaccine, several patients were admitted to the hospital with symptoms somewhat resembling those of typhoid fever. As these patients had been previously inoculated, a diagnosis of typhoid fever was not justifiable without a more thorough investigation.

On request the State Board of Health kindly consented to assist us in this task. Blood cultures were taken from twelve of the patients with the result that the *Bacillus typhosus* was found in one instance. This same patient gave a positive Widal reaction following the use of the prophylactic, and also after the onset of the disease. At necropsy typhoid ulceration was found in the ileum, thus verifying the nature of the infection.

Specimens of feces and urine were collected and examined; the *Bacillus typhosus* was isolated in two cases and the bacillus paratyphosis in three. Widals were made at intervals during the course of the epidemic. Of the forty-six patients examined, thirty-nine gave positive Widals, one gave an atypical reaction, two gave agglutinations with the bacillus paratyphosis, and three remained negative, although manifesting clinical signs of typhoid fever. Due to oversight, no Widal was made on illustrative Case 3.

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[12] Concerning the significance of stereotropic stimuli for the growth of tissues, compare the following paper: Loeb, Leo: Ueber die Regeneration des Epithels, Arch. f. Entwicklungsmechanik, 1898, vi, 237, Chapter 13.

Owing to the complexity of symptoms, including pharyngitis, cultures from the nose and throat were made, which showed the presence of diphtheria bacilli in eleven of the patients. These being of a non-virulent type, prove conclusively that they bore no important relation to the course of the disease.

The typhoid occurring in separate buildings scattered over a wide area made it possible to dismiss the previous carriers as a source of infection, and to focus attention on the food, milk and water supply.

The distribution of food is from a central kitchen, and the milk supply is from the institution dairy. The major portion of the water is obtained from the city water supply, and the remainder from our own artesian well. The general water supply as a source of infection was ruled out, since sewage contamination was found to be improbable.

A spring on the east side of the grounds was considered, since it is possible for it to receive surface drainage, and several of the patients had had access to this water. As the majority of the patients had not partaken of this water, it was evidently not the primary source of infection. No carriers were found among those concerned with the preparation and distribution of food.

Investigation of the conditions existing at the dairy disclosed the fact that the dairyman had an ambulatory case of typhoid. The dairyman's wife was ill at the time; her symptoms were of an indefinite nature and a subsequent Widal was found to be positive. Neither the dairyman nor his wife had previously received prophylactic treatment. A milker, one of the inmates, had been removed to the hospital a few days previous to the investigation of the dairy, and after a prolonged prodromal stage developed clinical typhoid fever. He had returned recently from a short vacation in an adjacent town, where he no doubt contracted the disease. The daily association of the dairyman and his wife with this milker indicates that he was the original source of infection. Precautionary measures were immediately instituted. The dairyman and his wife were relieved from duty, and all the milk was sterilized during the next four weeks. Milk formed part of the diet of every individual who contracted the disease.

After the incubation period of twenty-one days had passed, new cases ceased to develop, showing conclusively that the milk supply was the source of the epidemic.

A total of fifty-seven cases in this epidemic were diagnosed as clinical typhoid. Of this number forty-six were inmates and the remainder were employees. Only one of the employees had received the prophylactic, and three of the inmates were uninoculated.

The following typical case histories are presented to illustrate the symptoms as they appeared in the clinical picture.

REPORT OF CASES

Case 1.—(No. 7) G. M., girl, aged 18; admitted to the hospital Sept. 23, 1914; discharged Dec. 23, 1914.

Personal History.—Widal test made May 20, 1914, negative; typhoid prophylactic administered May 27, June 6 and 16, 1914. Widal test made July 9, 1914, negative.

Present Illness.—Began with severe headache, anorexia, nausea and vomiting and diarrhea, followed by marked prostration, restlessness and delirium. Tongue coated, sordes marked, abdomen very tender, spleen palpable. Rose spots appeared on the abdomen. Temperature on admission, 101 F., and 104 to 105 in the afternoon for ten days, gradually declining to normal on the thirty-sixth day. Stools contained occult blood on the eighth day, and two fairly large intestinal hemorrhages occurred on the thirteenth day.

On the fourteenth day 3,000 units of diphtheria antitoxin were administered.

Laboratory Findings.—Widal test made Sept. 29, 1914, atypical. Widals made Oct. 3, 1914, and Nov. 1, 1914, positive. Blood culture taken Sept. 30, 1914, negative. Throat culture taken Oct. 10, 1914, showed diphtheria bacilli of a non-virulent type.

Case 2.—(No. 9) A. E., man, aged 23. Admitted to hospital Sept. 24, 1914. Discharged Nov. 25, 1914.

Personal History.—Widal made May 6, 1914, negative. Typhoid prophylactic administered May 27, June 8 and 22, 1914. Widal made July 1, 1914, positive.

Present Illness.—Complained of headache, sore throat and abdominal distress for about a week before admission to hospital. On admittance had headache, pain in limbs, coated tongue, some abdominal tenderness and anorexia. Constipated during entire course of the disease. Temperature 103.4 F. when received at hospital, and fluctuated between 102 and 104 for eight days. Began to decline the ninth day, reaching normal on the twenty-first day. From twenty-first to thirty-first day the temperature was very irregular, varying from 96.4 to 101.8. It remained subnormal or normal on the forty-seventh and forty-eighth days, and rose to 101 on the forty-ninth day, dropping to normal on the following day. On the seventeenth day of the disease 3,000 units of diphtheria antitoxin were given.

Laboratory Findings.—Widals made Sept. 28, 1914, Nov. 1, 7, 9, 13 and 17, 1914, negative. Widal made Nov. 22, 1914, positive. Blood culture taken Sept. 30, 1914, negative. Throat culture taken Oct. 10, 1914, showed diphtheria bacilli of a non-virulent type.

Case 3.—(No. 10) M. L., man, aged 24, admitted to hospital Sept. 24, 1914. Died Oct. 16, 1914.

Personal History.—Widal made May 30, 1914, negative. Typhoid prophylactic administered June 5, 15 and 25, 1914. Widal made Aug. 17, 1914, negative.

Present Illness.—For a few days before entering hospital the patient was annoyed by frequent epistaxis, diarrhea was marked and pains in the back were severe. Temperature 101.6 F. on admission to hospital, and rose to 104.6 the following day. Temperature remained high until the fifteenth day in the hospital, when there was a sudden drop of 99, with evidence of perforation. The next day his temperature rose to 105, the abdomen became tense and the patient died.

Laboratory Findings.—Blood culture taken Sept. 30, 1914, negative. Necropsy showed two small perforations in the ileum and numerous ulcers, some beginning, some mature and others healing.

Case 4.—(No. 13) C. S., man, aged 21. Admitted to hospital Sept. 26, 1914. Discharged Nov. 25, 1914.

Personal History.—Widal made May 30, 1914, negative. Typhoid prophylactic administered June 5, 15 and 25, 1914. Widal made July 14, 1914, negative. Widal made July 18, 1914, positive.

Present Illness.—Five days prior to entering hospital there was anorexia, fatigue and pains in the back and neck. Entered hospital September 26 with tongue heavily coated, stools watery and very offensive. Temperature 101 to 103.6 for thirty-three days, when it began to recede and the patient made an uneventful recovery.

Laboratory Findings.—Blood count normal. Blood culture taken Sept. 30, 1914, negative. Widals made Oct. 26 and Nov. 1, 1914, positive. Throat culture taken Oct. 10, 1914, showed diphtheria bacilli of a non-virulent type.

Case 5.—(No. 20) H. T., girl, aged 5, admitted to hospital Sept. 29, 1914. Died Nov. 27, 1914.

Personal History.—Typhoid prophylactic not given.

Present Illness.—Admitted to hospital with bronchitis. Temperature 102 and 98 to 99 for twenty-four days, then rose suddenly to 103 with extreme prostration, restlessness and delirium. Sordes marked, abdomen tympanitic, spleen palpable. Temperature ranged from 103 to 105 in the afternoon, until death occurred on the fifty-eighth day.

Laboratory Findings.—Widals made Oct. 12, 1914, and Nov. 1, 1914, negative. Widals made Nov. 7, and Nov. 9, 1914, atypical. Widal made Nov. 13, 1914, positive. Necropsy: Ulcers found in large number in the ileum.

Case 6.—(No. 31) C. C., woman, aged 36, admitted to hospital Oct. 5, 1914. Discharged Nov. 25, 1914.

Personal History.—Widal made May 21, 1914, negative. Typhoid prophylactic administered June 2, 12 and 22, 1914. Widal made July 11, 1914, negative.

Present Illness.—Patient suffered from anorexia and general malaise for ten days. Then had a sudden, severe rigor with throbbing headache, severe backache and pain in the chest. Was constipated and had a racking cough. There was a marked tenderness in the right iliac region, tongue coated, sordes marked, rose spots on abdomen. Crepitant râles could be heard in the bases of both lungs posteriorly, but no dulness was found. Temperature on admission 100.6 and ranged from 103 to 104 in the afternoon for nine days, then gradually declined and reached normal on the sixteenth day.

Laboratory Findings.—Widal made Oct. 26, 1914, atypical. Widals made October 29 and November 1, 7, 15, 17 and 22, negative. On November 17 agglutination was obtained with the *Bacillus paratyphosus,* and this bacillus was isolated from the stool.

Case 7.—(No. 43) C. M., man, aged 17, admitted to hospital Oct. 22, 1914. Discharged Dec. 4, 1914.

Personal History.—Widal made May 6, 1914, negative. Typhoid prophylactic administered April 30, May 11 and 21, 1914. Widal made Aug. 13, 1914, negative.

Present Illness.—Complained of headache and abdominal pain two days previous to admission. On admission the patient was very nervous and covered with profuse perspiration; tongue heavily coated, anorexia, slight abdominal tenderness over splenic area. Spleen became palpable and a few rose spots appeared. Constipated during course of disease.

Laboratory Findings.—Widals made Nov. 1 and Nov. 24, 1914, positive.

The foregoing histories illustrate a more typical course of typhoid than is presented in the majority of the cases. Symptoms common to all cases were anorexia, indefinite pain in back, neck or abdomen, headache and constipation. Acute toxemia and marked prostration were present in but three of the previously inoculated patients. In fact it is worthy of note that many of the classical symptoms of typhoid, such as enlargement of the spleen, rose spots, epistaxis and abdominal tenderness were absent in most cases. However, the course of the disease did not appear to be appreciably shortened. The mortality among the vaccinated was 9.1 per cent., or less than one-half of that occurring among the unvaccinated, which was 23 per cent.

The cause of an epidemic of this nature so shortly after the completion of vaccination with the antityphoid vaccine is a subject for further discussion.

Various reports submitted by recent investigators who have had vast experience in the use of the prophylactic among large numbers of individuals, show that it is not an uncommon occurrence for typhoid fever to develop among a certain proportion of protected persons.

The use of the vaccine by the Germans in 1904 in the Herero campaign in Southern West Africa, resulted in a diminution of the occurrence of cases among the protected to about one-half as compared with that among the unprotected. The mortality among the unprotected was about four times as great as among the protected.

Figures computed by Col. R. H. Firth, covering the first six months of the year 1911, relative to vaccinated soldiers in India, show that the case incidence for typhoid was approximately five times greater among the non-protected than among the protected.

In a recent article by Frederick F. Russel,[1] U. S. A., are cited the remarkable results obtained by the use of the prophylactic in the United States army during the past six years. He says:

> Table 1 shows that the number of cases in the United States proper has fallen from 3.53 per thousand men to 0.03 in the six years; the death rate has fallen from 0.28 in 1909 to zero in 1913. In both instances the greatest improvement has been during the past three years since the vaccination was made compulsory.

No doubt these extraordinary results were in part due to the fact that camp sanitation was greatly improved and the chance of infection reduced to a minimum.

In the epidemic under consideration about one-half as many cases occurred in the protected as in the non-protected, and the mortality among the protected was less than one-half that among the non-protected.

No doubt the proportion of cases among the protected individuals would have been greatly reduced were it not for the fact that the milk, which was the source of infection, was saturated from day to day with typhoid bacilli.

So far as we are able to ascertain from the literature investigated, there is no record of a protected community having had one of the chief sources of food supply contaminated with typhoid bacilli over an extensive period of time, as occurred in this recent epidemic.

Other factors to be considered which might influence the proportion of disease incidence in vaccinated individuals, are as follows:

The possibility of the vaccine used having been overheated during its preparation, which accounted for the unsatisfactory results obtained by those who first experimented with its use. The use of vaccine which has deteriorated from not being kept at the proper temperature, or on which the time limit has expired. Faulty technic in the method of administration. Failure to adhere to the proper time interval between inoculations and to the correct number of bacteria injected.

The vaccine used in inoculating individuals connected with this institution was prepared and furnished entirely by the State Board of Health, used within the specified time limit, and kept at the proper temperature. The method of administration, the dosage, and the time interval were adhered to as recommended by the State Board of Health, except that 10 minims instead of 7½ were given at the first inoculation. Statistics show that 65 to 70 per cent. of exposed individuals have a natural immunity and therefore do not contract the disease.

It is evident from a study of this epidemic, and from the experience of others, that the typhoid vaccine in some cases fails to confer immunity, or confers only partial immunity.

Laboratory investigations by means of the Widal reaction have shown in those cases previously inoculated with the vaccine, that the blood in most cases has acquired the power of agglutinating typhoid bacilli.

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[1] Russel, F. F.: Antityphoid Vaccination in the Army During 1913, The Journal A. M. A., May 2, 1914, p. 1371.

We know that following a clinical attack of typhoid fever the agglutinating property of the blood is present, and that frequently this is lost after varying lengths of time, while the individual possesses as a rule a lifelong immunity. At present the only laboratory index by which immunity is suggested is the appearance of agglutinins in the blood. The occurrence of clinical typhoid fever in those having been previously inoculated proves that the appearance of agglutinins in the blood is not a positive index of immunity.

Of those who developed typhoid fever in this epidemic, 14.3 per cent. gave positive Widals after inoculation, 21.4 per cent. gave atypical reactions, and 64.3 per cent. gave negative reactions.

Negative blood reactions following the use of the prophylactic may be due to one or more of the following factors: incorrect interpretation of the reaction; improper dilution of the serum; the use of freshly isolated cultures, which often resist agglutination; and, decomposition of the blood, due to incomplete drying of the specimens collected. It is also worthy of note that the agglutinating power of the blood does not remain constant, which is clearly shown in Table 2.

TABLE 2.—RESULTS OF WIDALS MADE IN 127 INDIVIDUALS (MALES) AT TEN-DAY INTERVALS FOLLOWING FIRST, SECOND AND THIRD INOCULATIONS

	Reaction Following First Inoculation		Reaction Following Second Inoculation		Reaction Following Third Inoculation	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Positive reaction....	12	9.4+	67	52.7+	37	29.1+
Atypical reaction....	9	7.0+	15	11.8+	22	17.3+
Negative reaction...	106	83.5+	45	35.4+	68	53.5+
Total Widals taken.	127	100	127	100	127	100

Reviewing the findings in the preceding table, it is noted that the positive and atypical reactions begin to appear following the first inoculation. Following the second inoculation, there is a marked increase in the positive and a slight increase in the atypical reactions. The positives following the third inoculation decrease almost 50 per cent., while the atypicals show a steady increase.

CONCLUSIONS

1. Typhoid fever may be contracted by individuals who have received the prophylactic and who subsequently show a positive Widal.
2. The course of the disease is not appreciably shortened in vaccinated individuals.
3. The mortality is markedly reduced among protected persons.
4. Protected persons having typhoid fever fail to give many of the classical symptoms of the disease.
5. The development of paratyphoid is not prevented by the use of the typhoid prophylactic.
6. The degree of immunity conferred by the prophylactic in some cases fails to prevent the development of typhoid when the individual has been subject to repeated exposure.
7. The Widal reaction as a criterion of the presence of immunity is of uncertain value.

Typhoid vaccination applied as a routine measure in all of our hospitals and institutions is the one and only method to pursue to eradicate this ever present, serious, and often fatal disease. As a step in this direction State Boards of Health throughout the country are giving their cooperation and furnishing the vaccine free, to stimulate its use.

To the Minnesota State Board of Health we owe a debt of gratitude for their ever willing and hearty cooperation; their assistance in locating the source of the epidemic; and their promptness in performing the various laboratory tests.

MEDICAL INSPECTION OF OPEN AIR SCHOOLS

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Since the introduction, in 1908, of open air schools into the educational system of America, the number of these schools has increased at a surprising rate. To-day every city has an open air school, and the general plan is well known to all.

It is not the object of this paper to deal with the whole subject of this type of school, but with a feature which, up to this time, has received little comment.

As these institutions differ in many ways from the ordinary school, so also does the medical inspection present different problems.

The Edward Mott Moore Open Air School of this city was among the first to be opened in America, and we have been able in the past six years to try out various plans for medical inspection. After many experiments we have developed a system that is meeting requirements. As many physicians have been and will be called on to supervise work of this nature, we have thought that the results of our experiences might be of value to them in undertaking such work.

I will endeavor to outline briefly the work as it is carried on at the present time.

The medical inspection of our school is not under the direction of the city school inspectors, but is provided by the Rochester Public Health Association, which maintains a general dispensary as well. In many ways this removal from the regular school system is an advantage. The child is really taken as a patient of the association, and all problems of physical welfare are settled by physicians from the staff. Thus it is possible to make complete physical examinations, while in the regular schools they are very limited, as the child must be examined dressed. The difficulty of having directions followed in regard to corrections of physical ailments, which presents such a problem in the regular schools, is here eliminated, as we have, and exercise, the right to exclude or dismiss any children not following out our instructions. Of course such children are allowed to return to their former schools. Under these instructions would come removal of tonsils and adenoids, fitting of glasses, dental work, etc.

The routine now is as follows: All applications for admission are made at the association building, and the examinations are made on a certain afternoon of each week by the medical director of the association. If the case is suitable, recommendations are made for filling the teeth, removal of tonsils and adenoids, treatment of skin conditions and correction of anything that would prevent the child getting the most good out of the school.

At one time we simply made recommendations for these corrections and then admitted the children, but now we will not admit a case until all instructions have been carried out. This makes a reexamination necessary before the child can be put on the waiting list. Thus we are certain that the children are in good condition, and we are saved the trouble of forcing the parents to care for these matters later.

After the first examination, a visit is made at the home by the school nurse, who reports back on the home and financial conditions. If the parents are unable to take the child to a private physician for such care as is needed, the child is admitted as a patient of the association dispensary, where all examinations and operations may be secured. The nurse on this visit gives advice as to food, sleeping quarters, open windows, etc. She also fills out a report card on the home, and takes the history of the case as outlined.

Before we had a special nurse to visit these homes, the parents seemed to have an idea that the school would provide all the food required each day, and children were sent to school without breakfast, and some had no meal at night. As no school pretends to give a full diet, this made treatment, in not a few cases, very difficult. Such matters are now explained by the nurse.

If all directions have been carried out, the name is sent to the school, and when a vacancy occurs, the child is admitted.

The nurse gives the child a bath, takes a record of his weight, height, pulse, temperature and chest expansion on the day of admission. These records, together with the report of the health association examinations, the nurse's report on the home and history are before the physician when he makes his first examination at the school. Then the child is given a fairly complete physical examination, which is recorded on the chart. A test for the percentage of hemoglobin is also made.

So we have for each child in the school:

1. Report of examination at time of application.
2. Report of home conditions.
3. History and physical.
4. Chart showing temperature, pulse, height, weight, chest expansion and hemoglobin.

For keeping the four reports, both sides of two cards 7½ by 9¼ inches are utilized.

1. Across the top of the front of the physical examination card, with spaces for filling in, are the words: Name...., Date of Birth...., Nationality...., Address...., Age...., Sex...., School...., Grade...., Date of Admission...., Sent by...., Examined by Dr. ...., At R. P. H. A. ...., 19...., Date of Discharge...., 19...., Diagnosis...., Principal...., Examined by Dr. .... .

The remainder of the card is divided into two columns, one headed "History" and the other "Physical Examination." To guide the examiner, the history column contains the following outline: Family History—Father—Mother—Brothers—Sisters. Tuberculosis—Nervous Diseases—Alcoholism—Home Conditions—Sleeping Rooms—Boarders. Previous History—Habits—Diet—Tea—Coffee—Alcohol—Sleep—Work—Bowels—Urination. Diseases of Childhood—Venereal History. Previous Diseases—Pneumonia—Pleurisy—Rheumatism—Tonsillitis—Tuberculosis. Injuries—Operations—Present History.

The physical examination column contains the following outline: General Appearance—Nourishment—Deformities—Spinal Curvatures—Skin—Mucous Membranes—Color—Eyes—Ears—Nose—Throat—Tongue—Teeth. Heart—Apex Beat—Dulness—Character of Sounds—Regularity—Murmurs—Vessels—Pulse—Blood Pressure. Chest and Lungs—Inspection—Palpation—Percussion—Auscultation. Abdomen—Liver—Spleen—Extremities—Joints—Reflexes—Lymph-Nodes—Clinical Data—Urine—Blood—Sputum, etc.

Beneath is printed: Diagnosis........ Date.... 19...., Examiner, Dr. .. .

2. On the back of this card are columns for data under the following headings: Date; Time; Temp.; Pulse; Resp.; Weight, G., L.; Height; Chest, I., E.; Hem.; Remarks. There are twelve blank lines, and at the bottom: Teeth: Condition...., When cared for.... .

3. The front of the home investigation report card contains the following outline to be filled in: No. .., Name...., Address...., Sex...., Age...., Previous address...., Nativity...., In U. S. how long...., City...., No. in family...., Boarders, male...., female...., Health of boarders...., Father...., Mother...., Brothers...., Sisters...., Relatives ...., House...., No. rooms...., No. sleeping rooms...., Occupies front...., rear...., Adjoining houses how near...., Yard...., Balcony...., Size of child's room...., No. windows...., Open...., Closed...., Sleeps alone...., Others in room...., Sunlight...., Hours in room...., Bathroom...., Diet...., Milk...., Eggs...., Alcohol...., Does child work ...., Average weekly income...., Present income...., Means of support...., Insurance...., Rent...., Any business done on premises...., Carfare...., Towels...., Amount paid for meals per day...., Parents' attitude...., Reported to...., Reported from...., Family physician.... .

4. The back of the card is ruled with twelve lines, one for each month, with columns headed as follows: Date (with five vertical subdivisions); Summary of visits: Sick, cooperative, primary, subsequent; Remarks; Days Absent. At the bottom is a space for special notes.

After admission, the children are given a bath once a week and at that time records are taken of the temperature, pulse, weight and chest expansion. These records are placed on a chart where they may be read by all. This helps to keep the teachers familiar with the physical condition of the children. The hemoglobin is recorded twice a year.

Once a month every child in the school is seen by the physician. The patient is stripped to the waist and a general examination made. The physician has before him the record card and can usually, at a glance, tell if anything unfavorable has happened since the last examination. If any loss of weight, increase in temperature or other symptoms are recorded, a more careful examination is then made.

An office with examining table is provided for the physician, and the children can be examined rapidly, with two or three being prepared for examination all the time. In order to save time it is better to examine boys on one day and girls on another.

On certain months, special attention is given to the eyes, on another to the teeth or to spinal curvatures, and so on. We have called in specialists for consultation in selected groups of cases.

It is surprising how much can be learned in regard to a case in a very short space of time by this method.

All recommendations are noted on the chart and followed up the next month. The nurse makes notes of suggestions, and confers with the mothers if necessary. If we find that the child needs medical or surgical treatment, we have a record of the financial condition, and know whether or not the family has a private physician. If there is a family physician, we advise that the child be taken to his office, and furthermore, our suggestions are nearly always carried out. If the family is unable to secure such care, the nurse takes the child to the dispensary for treatment.

Unless the family physician advises against treatment, the corrections, as suggested, have to be made or the child is dismissed to return to the regular school. Great care is exercised that the rights of private physicians be respected.

It may seem at first glance that the records are too complete to be practical, but when it is considered that every child is supposed to be in need of special care; that we take many children predisposed to tuberculosis, from homes where the disease exists; and also that no case of actual tuberculosis is taken, it will be seen that the ordinary school examination, as to-day practiced, will not answer if results are to be obtained. Many of the cases of anemia, cardiac disease and malnutrition also need close attention.

Complete records give us a better understanding of the case and therefore add interest to the work. Records assist greatly in the treatment and save much time for the attending physician. Lastly, they are valuable for reference and as statistics after the child leaves the school. The cards are kept in individual envelopes and on file.

We have carried out this program with a nurse visiting the school once a week, and with teachers assisting at examinations; but this was unsatisfactory. Unless a physician can give several hours a week to the work, a school nurse is very necessary, if only on part time. At present we have a nurse but five forenoons a week for sixty children. The physician averages about three hours a week at the school.

We are of the opinion that a school nurse, even on part time, is one of the most valuable assets that an open air school can have.

The duties of such a nurse are: 1. To visit the homes, reporting home conditions, history of the case, etc. To advise the family as to proper hygiene and care of the child. 2. To give the children weekly baths and to record weights, temperature, etc. 3. To assist the physician at all examinations and to file the records of the case. 4. To investigate cases of absence, because irregular attendance greatly interferes with good work at the school. 5. To supervise health matters at the school in the absence of the physician.

Further duties of the school physician are: 1. To inspect the building and school rooms frequently. 2. To offer suggestions as to exercises, clothing, open windows, food, rest and in fact anything in general hygiene that may be presented.

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"Final Causes" Not the Province of Science.—Science has practically given up answering whys and contents itself with describing hows. If you ask a scientific man why a stone falls to the ground, he will tell you that he doesn't know. Not long ago he would have replied that it fell to the ground because the earth and stone attract one another. This is very much the same as saying that an unsupported stone falls to the ground because, as has been ascertained by frequent experiments, an unsupported stone falls to the ground. But if you ask a scientific man how a stone falls to the ground, his intelligent countenance will light up at once and he will talk for a long time. He will talk about the acceleration of the stone, mention Newton, and say something which sounds complicated about inverse square of the distance and directly as the masses. In short, Newton's law of gravitation tells how bodies approach one another, but does not profess to say why they approach one another. There are some ingenious gentlemen, many of whom live in France, who think that is all science can do, and perhaps they are right.—*Scientific American.*

THE USE OF CITRIC SALTS IN CONGESTIVE DYSMENORRHEA

AND THE RELATION OF THE LATTER TO THE VAGOTONIC STATE

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An apology seems in order for this apparent intrusion within the domains of gynecology; but the internist is so frequently consulted in reference to dysmenorrhea associated with conditions pertaining to his province, that perforce he must be adept in relieving the menstrual anomaly by virtue of general treatment.

The organic forms are herein not considered. Morbid states of the ovaries, ducts and uterus comprise definite clinical entities, often requiring surgical intervention, and yet there seems to be an associated cause in the congested endometrium itself which frequently persists after operation. How often are we chagrined to find our patient unrelieved by fixation of the uterus or dilatation of the cervical canal!

Many nulliparas who have not suffered social infection are victimized by a primary or an acquired congestive form of dysmenorrhea. Even the constitutional states may be included in the same category. Tuberculosis, rheumatism, chlorosis, gout and other diseases are associated with impaired integrity of the endometrium and predispose to congestion. The possible exceptions are the relatively few individuals deficient in hormones, the pituitary, thyroid, ovarian or suprarenal secretions.

To be brief, most non-organic types of painful menstruation, frequently complicated by sterility, may be ascribed to the one essential—congestion. Furthermore, organic conditions, as minor malpositions and moderate atresia, may be largely dependent on the same fundamental factor.

In explanation of this problem, Mosher[1] defines the physical causes. The dependence of dysmenorrhea on the erect posture, tight lacing and costal respiration is beyond question. There can be no doubt that obstruction to the return flow of blood from the pelvis is a potent cause of uterine anomalies, and the method suggested to encourage the return toward the right heart has been found to produce excellent results. Briefly, the subject is taught to exert deep, diaphragmatic movements by the forceful raising and lowering of the anterior abdominal wall.[1]

It seems, however, that we must go further in elucidating the problem. There are three chief factors concerned in the production of functional dysmenorrhea: First, a morbid condition of the endometrium. Loeb's work[2] indicates that at menstruation there is little epithelial denudation; and yet with long-standing congestion with secondary inflammation, it seems probable that clotting and other causes may induce separation to a greater or less degree. Secondly, the consequent interference with uterine contraction and obstruction to its discharge which become aggravated by uterine and cervical spasm. The spasmodic influence assumes additional importance in the vagotonic, to which reference will be made later. Lastly, the nervous element. No disorder illustrates the personal equation better than menstrual pain. Every case is individual, and there seems to be an excellent opportunity here to utilize measures toward strengthening the psychic element.

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[1] Mosher, C. D.: A Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with the Menstrual Function, The Journal A. M. A., April 25, 1914, p. 1297.

[2] Loeb, Leo.: The Experimental Production of the Maternal Placenta, and the Function of the Corpus Luteum, The Journal A. M. A., Oct. 30, 1909, p. 1471.

That the morbidity of the endometrium may be appreciated, brief reference is made to the changes occurring during the premenstrual stage. As a sequence to vascular relaxation, the intercellular spaces in the deeper layers become greatly swollen. The stroma cells also take part in the edema, and the glands are dilated, with infiltration of their epithelial lining and distention of their lumina with mucus and blood-cells. The superficial stratum of the mucosa allows less engorgement and remains a compact layer overlying the spongy tissues. It is believed that as a result of increased pressure, this surface epithelium becomes necrotic and is then exfoliated with the onset of the flux. As mentioned above, in recurring congestive inflammation there is greater separation of epithelium, and fibrinous membranes with thrombi are of common occurrence, characterized by varying degrees of discomfort. In the most pronounced form this represents membranous dysmennorrhea.

Over a year ago I[3] suggested that increased viscosity of the blood takes part in the production of dysmenorrhea. The causative factor is faulty hygiene, defective elimination, nitrogenous overindulgence, sedentary occupation and tight lacing. At the time of uterine congestion, the blood in this organ is more viscid, and with the accompanying stasis there is greater infiltration of serum into the neighboring tissues. This induces a change in the chemical equilibrium of the endometrial cells by causing the cellular colloids to absorb more serum and transforming this gelatinous material into a viscid mass. The effects are greater distention of the spongy layer and increased vascular stasis and mucus production, with the consequent shedding of fibrinous and thrombotic membranes. With this morbid state the ovum cannot readily engraft itself, and sterility is a frequent sequel. Reducing the viscid blood inhibits the formation of clots and membranes; stasis is diminished and excessive edema of the endometrium retarded. Bleeding through the glands is increased, and diapedesis through stroma and epithelium lessened.

In regard to treatment, nitrogenous food raises the viscosity of the blood, and accordingly is restricted before the menses. Catharsis depletes the portal circulation, and at times a hot compress is applied for the purpose of relaxation. The important procedure is the reduction of viscosity through the use of sodium citrate,[4] 20 grains three times daily, during the week or two preceding the expected period. The mode of action is peculiar to the citrates. Diuresis does not explain the results. It seems probable that the alkaline citrate neutralizes carbonic acid and other waste products and increases oxidation, thus proving to be the most efficient method for preventing cellular edema and diminishing viscosity. For the technical study of the chemistry involved in the production of edema, the reader is referred to the recent work of Woolley.[5]

The clinical evidence in support of the efficacy of this treatment is the improvement of pain and the reduction of clots and membranes in the menstrual discharge. Further, nausea, dizziness, headache and mental irritability are vastly improved.

There are types in which dysmenorrhea is an expression of the vagotonic state. Increased irritability of the craniosacral nerves leads to a higher degree of uterine and cervical spasm. Neugebauer discusses the symptoms of this vagotonic type of dysmenorrhea, and speaks favorably of the use of atropin.[6] The menses occur usually at three-week-intervals, and are profuse and painful. Other symptoms of vagotony are readily identified. The signs and treatment of this neurosis were discussed in an earlier communication[7] and in the writing of Wolfsohn.[8]

In other instances, dysmenorrhea attends the hypoplastic state with persistent thymus and frequently the incomplete forms of hypothyroidism. Sehrt[9] suggests that hyperesthesia of the genital sphere depends on protracted auto-intoxication, owing to the lack of thyroid secretion. It seems certain that thyroid insufficiency frequently coexists with the vagotonic neurosis, and the addition of thyroid extract is very effective in treating this disorder. Hertoghe[10] recommends the extract for menorrhagia in adolescence, and states that the anemic influence of the menses is thereby reduced. From personal observation, thyroid extract appears to regulate the menses in certain secretory anomalies and to reduce the intermenstrual leukorrhea. This applies particularly to chlorotics, for whom pituitary extract proves a valuable adjuvant to the thyroid medication.

At this point there is need for protest against self-medication in menstrual pain. At the earliest symptom of pelvic discomfort there is a demand for the palliating influence of alcoholic mixtures. We may well accuse ourselves of partial responsibility for this circumstance through our unwitting administration of alcohol. Practically all tonics depend largely for their effectiveness on the menstruum. More or less inactive drugs are combined with a considerable quantity of alcohol and are thus prescribed. Degradation to the proprietary is a ready sequence. Long sufferers are ready prey to enticing "wines" and "compounds." Others go further, progressing to the use of household liquors until a state of quasi-intoxication induces vasomotor relaxation and soothes the menstrual agony.

Highly intellectual women on close inquiry acknowledge recourse to their favorite remedy, an alcoholic prescription from the family physician, a much vaunted nostrum or crude liquor. The effect is similar: the alcohol is demanded when the patient is "unwell," and the habit is formed to continue during many years. When our young Americans at seminary and summer hotel are supplied by anxious mothers with whisky or nostrum, it seems incumbent on our profession to exert every effort in restraining this pernicious tendency and to prescribe appropriate measures for the replacement of alcohol in its varied disguises.

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[3] Spitzig, B. L.: Cause and Treatment of Menstrual Membranes, Cleveland Med. Jour., November, 1913, p. 760.

[4] Since the earlier report the salt is used in place of citric acid. It seems probable that the acid exerts its action after its conversion in the body to the alkaline salt.

[5] Woolley, P. G.: Factors Governing Vascular Dilatation and Slowing of the Blood-Stream in Inflammation, The Journal A. M. A., Dec. 26, 1914, p. 2279.

[6] Neugebauer, H.: Vagotony, Wien. klin. Wchnschr., 1914, xxvii, No. 28; abstr., The Journal A. M. A., Aug. 8, 1914, p. 518. Since writing the present article, the work of Novak has come to my attention: Novak, Emil: The Atropin Treatment of Dysmenorrhea, The Journal A. M. A., Jan. 9, 1915, p. 120. Novak's article contains additional references.

[7] Spitzig, B. L.: Vagotony and Its Relation to Mucous Colitis, The Journal A. M. A., Jan. 31, 1914, p. 364.

[8] Wolfsohn, J. M.: The Normal and Pathologic Physiology of the Visceral Nervous System, The Journal A. M. A., May 16, 1914, p. 1535.

[9] Sehrt, E.: Thyroid Insufficiency in Relation to Nervous Disturbances and Spastic Constipation in Women, München. med. Wchnschr., 1914, lxi, No. 8; abstr., The Journal A. M. A., April 4, 1914, p. 1130.

[10] Hertoghe, E.: Thyroid Deficiency, Med. Rec., New York, Sept. 19, 1914, p. 489.

THE ABDERHALDEN REACTION *

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During the past year considerable doubt has been cast on the specificity of the Abderhalden reaction. Abderhalden assumes that specific ferments capable of attacking only placental tissue are elaborated as the result of the entrance of placental cells into the general circulation. He used two methods of demonstrating the digestion of the placental tissue by the serum of pregnant women; the first method was by means of the polariscope, and the second, by means of dialyzing membranes. The second is the one he recommends for clinical purposes. According to this method, the serum and specially prepared placental tissue are introduced into a dialyzing thimble, and the thimble then placed in distilled water. The mixture is placed in the incubator, and the fluid outside the thimble tested the following day for the presence of substances reacting with ninhydrin. The latter substances are supposedly derived from the placental protein as a result of the action of the specific ferments. According to Abderhalden, the greatest precaution must be taken in making the test in order to prevent bacterial contaminations, as the dialysate of the tubes showing bacterial growth will almost invariably give positive ninhydrin reactions.

Within the past year, articles have appeared in which the specificity of the reaction has been questioned, and others which deny the presence of such specific ferments. In his replies to these articles, Abderhalden states that their results are due to faulty technic, and that his assistants never fail to get positive results with serum from pregnant women and negative results with other serum.

If we accept Abderhalden's view, we must assume that specific ferments may be liberated, or generated, as the result of the entrance into the general circulation of any of the cells of the host. If this is so, what prevents the destruction of the remaining cells of the same type?

In the views which he has advanced, Abderhalden ignores entirely the antitrypsin normally present in the blood. Possibly he believes that this specific ferment is not subject to antitrypsin influence. Jobling and Petersen found that protein digestion occurs in serums containing proteolytic ferments if the antitrypsin is removed, and that these substances can be extracted by chloroform and ether, or adsorbed by treating the serum with kaolin, starch and agar. In other words, any agent which will remove the antitrypsin from a serum containing proteolytic ferments can take the place of the placental tissue in the Abderhalden test. This probably explains why Abderhalden reactions may usually be obtained with guinea-pig and rabbit serums, as these serums usually contain ferments.

Are there proteolytic ferments present in the serum of pregnant women which will attack only placental protein and which are not present in other individuals, and the action of which is not prevented by the antitrypsin normally present in the serum? To this question I must answer no. During the past year we have examined the serums of a large number of patients entering the hospital suffering from various diseases, and also a number of supposedly healthy individuals. We found that strong proteolytic ferments are rarely present in healthy human beings, but that they are present in large amounts in pregnancy, pneumonia and certain cachexias. We were able to obtain positive Abderhalden reactions in all human serums containing many ferments, regardless of the disease, not only with placental tissue, but also by extracting the serum with chloroform, or by using starch. Positive reactions were obtained with starch almost as readily as with placental tissue. In each case the serum was tested for its antitryptic strength before and after the tubes were incubated, and always found to be much lower after incubation. In those tests made with normal serums, the antitrypsin was also decreased, but the Abderhalden reaction was negative because there were no, or not sufficient, ferments to act on the exposed serum protein. While other substances will give a positive Abderhalden reaction with serum containing proteolytic ferments, placenta appears to be the best agent. It is not clear just why placenta should be the best agent for the adsorption of antitrypsin; possibly it is because there is a larger area of exposed surface.

The ferment of the serum was demonstrated in two ways. First we removed the antitrypsin with chloroform, as recommended by Jobling and Petersen, and second, added 0.2 per cent. acetic acid to the serum, as recommended by Opie. The serum was then incubated. The presence of ferments was indicated by digestion of the serum proteins. This was demonstrated by observing the increase in non-coagulable nitrogen. We have shown that the placental tissue is not digested, and that it contains as much and often more total nitrogen after digestion with positive serums than before. Further, we have found that such treated placental tissue is more resistant to the action of trypsin than the untreated. This is due to the fact that it has taken up antitrypsin.

The greatest care was taken throughout this work to prevent bacterial contaminations, and numerous cultures were made. In no instances was bacterial growth obtained. The thimbles were tested before and after making the tests, and the experiments discarded if subsequent tests cast doubt on their permeability.[1]

I must conclude, then, as a result of our work, that specific proteolytic ferments capable of attacking only placental tissues do not exist in the serum of pregnant women. Ferments are present in the blood of such individuals, just as they are in patients suffering from pneumonia, cachexias, etc., but they are not specific for any particular human protein, and are made evident only when the antitrypsin has been partially removed. A positive reaction is due to the adsorption of the antitrypsin by the placental tissue, thus permitting the ferment to act on the exposed serum protein.

The serum protein, and not the placental tissue, forms the substrate from which the substances are derived which give the positive Abderhalden reaction. This is shown by the increased resistance of such treated tissue to the action of trypsin, and also by the fact that nitrogen determinations show that the tissue is still intact.

I do not wish to intimate that the test is of no clinical value, but I do think that a negative test has more significance than a positive. The value of a positive test can be determined only when we have become more familiar with the conditions in which these pro-

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* From the Department of Pathology, Vanderbilt University Medical Department.

[1] The details of the experiments mentioned above will appear in an early number of the Journal of Experimental Medicine.

teolytic ferments appear in the blood in sufficient quantity to give a positive Abderhalden reaction. The antitrypsin of the serum influences the proteolytic ferments and deserves consideration. It has been shown that in pregnancy, pneumonia and cachexias the serum has a high antitryptic titer. I believe, as suggested by others, that this would be a more reliable indication of pregnancy than a positive Abderhalden reaction.

MERCURIC CHLORID POISONING IN ANIMALS TREATED UNSUCCESSFULLY BY PARENTERAL ADMINISTRATION OF HALL'S NEW ANTIDOTE

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Some attention has been given in this laboratory to a recently proposed method of combating mercuric chlorid poisoning. Hall[1] suggests for this purpose a reversal of Mayer's reaction for the precipitation of alkaloids. These substances, as is well known, form insoluble compounds with mercuric potassium iodid. Wishing to render mercury insoluble in the body, Hall proposes the employment of an alkaloid dissolved in a potassium iodid solution, and has selected quinin as comparatively harmless and readily obtainable. His solution is in the following proportions:

Potassium iodid...........	7.35
Quinin hydrochlorid.......	4.0
Water	480.0

This forms a precipitate with mercuric chlorid in dilute acids or alkaline carbonates, and should therefore compare favorably with the ordinary antidotes now given into the alimentary canal.

Greatest interest, however, attaches to its parenteral administration in the hope of fixing the mercury which has already reached the blood and tissues. This I have attempted, but with quite negative results. In like manner Kunkel[2] once attempted to cure mercuric chlorid poisoning in rabbits by causing the animals to breathe small amounts of hydrogen sulphid in the hope of precipitating mercuric sulphid in the blood; beneficial results were not obtained.

Comparing microscopically the precipitate obtained by adding Hall's antidote to mercuric chlorid with a precipitate of mercuric sulphid, one sees that the granules of the Mayer precipitate are much smaller than the mercuric sulphid granules, and therefore if formed in the blood should be much more easily disposed of by the body. But can the precipitate be formed in the blood? Unfortunately not, at least in concentrations of mercuric chlorid in the blood as high as 1:1,000. This is shown by the test-tube experiments recorded in the accompanying tabulation.

The same results were obtained whether the antidote was added in equal parts with the mercuric chlorid-serum solution or in the proportion of one antidote to three mercuric chlorid-serum.

Thus the great obstacle to the therapy of mercuric chlorid poisoning, and in fact to so many other attempts at chemotherapy, is again encountered, namely, that the poison has a far greater affinity for the tissues (for instance, the proteins and other colloids in the blood serum) than for any non-toxic remedy that can be found. Our antidote fails to detach the mercury from its firm combination.

Not relying entirely on the foregoing significant serum tests, I have made a number of experiments on mice and rabbits.

In a preliminary series of mice, subcutaneous injections of mercuric chlorid in doses of from 0.01 to 0.02 gm. per kilogram of animal were found fatal in from two to six days; 0.1 gm. per kilogram of animal killed in from two to ten hours. I therefore selected 0.05 gm. per kilogram of animal as a dose which would probably kill not immediately, but within a day or so. Six mice were given this dose (subcutaneously) at about 10:30 a. m. Three of them received Hall's antidote (in amount sufficient to precipitate all of the mercuric chlorid) intraperitoneally within an hour. All six animals were alive at 5 p. m., and all six were found dead early the next morning.

Rabbits were even more discouraging. Two were given 2.5 mg. per kilogram mercuric chlorid intravenously, followed by intravenous injection within an hour of an amount of the Hall's antidote sufficient to precipitate all of the mercuric chlorid, in two equal injections one-half hour apart. Both had diarrhea and marked albuminuria the first few days, but the one which received no antidote survived twenty-one days, and the one which received the antidote died within nine days. Similarly, two rabbits received 5 mg. per kilogram each of mercuric chlorid intravenously, and one was given a corresponding amount of antidote, dying within six hours. The one receiving no antidote survived three days.

TEST-TUBE EXPERIMENTS

	Concentration	Precipitation with Hall's Antidote
Mercuric chlorid in saline	1:100,000	(?)
Mercuric chlorid in saline	1: 25,000	+
Mercuric chlorid in saline	1: 10,000	++
Mercuric chlorid in saline	1: 1,000	+++
Mercuric chlorid in fresh ox serum.	1:100,000	none
Mercuric chlorid in fresh ox serum.	1: 25.000	none
Mercuric chlorid in fresh ox serum.	1: 10,000	none
Mercuric chlorid in fresh ox serum.	1: 1,000	none

Thus the antidote was of no help in these experiments.

When the mercury is taken by mouth, as is usual in cases of poisoning in man, it is of course impossible to say how much reaches the circulation. Within recent years a case occurred in New Haven in which a whole gram was taken and no symptoms followed, although treatment was delayed for some hours. The poison was taken after a hearty meal, which of course prevented absorption.

One decigram of corrosive sublimate, rapidly absorbed, is given by the best authorities[3] as the minimum fatal dose for an adult. So-called "cures" after much larger amounts have been taken must be attributed to vomiting, purging or some other hindrance to rapid absorption by the body, such as abundant stomach contents or gastric atony.

The foregoing results indicate the apparent futility of parenteral treatment of corrosive sublimate poisoning by such a good precipitant of mercury as Hall's solution. As an adjunct to stomach washing it will quite possibly be found equal in value to tannic acid, white of eggs, or milk, etc., which are now employed.

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[1] Hall, W. A.: A New Antidote for Corrosive Sublimate Poisoning, Wayne County Med. Soc. Weekly, Dec. 21, 1914.

[2] Kunkel, A. J.: Handbuch der Toxikologie, Jena, 1899, p. 147.

[3] For example, Meyer, H. H., and Gottlieb, R.: Die experimentelle Pharmakologie, Berlin and Vienna, Ed. 2, 1911, p. 463.

HUMAN SERUM IN URTICARIA *

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Although a new chapter in the therapeutics of certain diseases of the skin has been opened by the use of human serum, so little has as yet been reported that all additional information is of the utmost value. The following case of obstinate urticaria associated with joint pains and a purpuric eruption presents some points of much interest. The disease did not yield to any of the ordinary methods of treatment, and it was found that the coagulation time of the blood was markedly increased. While some of the skin reactions with foreign proteins were somewhat suggestive, none was really positive, and the elimination from the diet of the substances which gave suggestive reactions had no apparent results. Epinephrin had a temporary beneficial effect.

On account of the increased coagulation time of the blood, and the fact that this time returned to normal when a drop of fresh human serum was added to a drop of the patient's blood, it was decided to try the effects of human serum given intravenously. The patient's brother was selected as a donor after all proper precautions had been taken, and six intravenous injections of his serum were given, a total of about 100 c.c. There were no bad effects from the serum. The longest interval between doses was twenty days. The patient has had no hives since the fifth injection, seven and one-half months ago, the coagulation time of the blood has been normal and she has felt better generally than for many years.

The literature on this subject is very brief. It is not necessary to review it here as this has been quite recently done by Fox,[1] Gottheil and Satenstein[2] and Hilario.[3] There is still much work to be done on this subject, in regard to the kind of serum of most value, the number of injections and the dosage. The case given here merely shows results in one type of case and with one method of treatment. The whole question of just how the serum acts remains quite unsolved.

In investigating other cases of urticaria in this connection, it has become apparent that they are certainly not all associated with an increased coagulation time of the blood, but that there are other factors at work.

REPORT OF CASES

History.—C. B. S., widow, aged 45, seen first, Feb. 25, 1914, complained of attacks of hives for eight months, with itching, pains in the joints and purpuric spots. The patient's father died of sarcoma. There was some rheumatism in the family. Otherwise the family history was negative. The patient was a small eater, and her habits of eating were regular. She had taken no coffee since onset, two cups of tea a day, and no alcohol. She took eggs about once in three days, cheese every day or two, usually cream cheese, occasionally Roquefort, but no cakes. She always took pepper on eggs but rarely on any other food. She ate meat once a day, no tomatoes, and no strawberries, as they bring out "red marks" on the skin. The average weight was 130 pounds, but the patient had lost weight recently. She did not take much exercise since onset, but before that a lot. She was not sleeping well and was taking adalin. Menstruation was irregular. There were no children, and there had been no miscarriages.

The patient had had mumps. Seven years ago, the right tube and ovary and the appendix had been removed. The operation had been followed by postoperative pneumonia. Two years ago she had a small tumor removed from the breast. There had been no recurrence. The patient had never been very robust. Eight months ago while in California, the patient was ill all one night with vomiting and diarrhea. Next morning she was covered with hives. There had been one very slight attack years before. She thinks that the attack eight months ago was due to eating oysters. No one else in the party was ill. Since then she has had six or seven attacks of urticaria, although she has been on a diet which excluded shell-fish and fruit and allowed only a little meat. At one time she had only rice for five days. In the intervals between attacks she had felt quite well. There was no asthma in the family and the patient had had none. The hives were accompanied by intense pain as well as itching, and were generally especially painful on the soles of the feet. During the attacks and afterward she suffered from grip-like pains in the bones of the legs and spine and at times in the joints. With the attacks purpuric spots were common, especially about the elbows and knees. The eyes and lips swelled. The appetite was never good. The bowels had been very costive since onset, but before that, fairly regular. Urination had been very frequent for the past two weeks, with some tenesmus. Formerly the patient did not have to get up at night, but now she had to two or three times. She was drinking a great deal of water. The interval between attacks was three or four weeks. The attacks were not becoming worse or more frequent. She was just recovering from an attack which kept her in bed for eleven days, and has been up for the past five days. The nose bled easily and frequently and always when the patient was on a high mountain.

Physical Examination.—The weight was 116 pounds. The patient was somewhat nervous. The color was good. There was no eruption. There was a very slight fulness in the region of the thyroid. Heart: The left limit of dulness was 11 cm. to the left of the midline in the fifth space. There were no murmurs. It was normal except for slight accentuation of the aortic second sound. The arteries were just palpable. The blood pressure was 145 and 85, the rate 85, regular. The rest of the examination was normal. The urine was pale, acid, specific gravity 1.011, and contained a trace of albumin, but no sugar or indican. There were few leukocytes, epithelial cells and hyaline casts. Blood examination revealed hemoglobin, 80 per cent.; spread appeared normal. There were no eosinophils.

Course.—March 2: Skin reactions with horse, rabbit and hen serums and egg albumin were all negative. Reactions with coffee, buckwheat flour and oysters were slightly suggestive. Milk showed a small wheal and marked erythema. The patient was put on a diet of fruit, green vegetables, potato and cereals without milk, and iron and strychnin tonic. The blood pressure was 150. The coagulation time (slide method), complete, was fifteen minutes.

March 4: Skin reactions with beef serum, sheep serum, buckwheat, milk, raw halibut and cooked halibut were all negative. Coagulation time (Brodie method) was from twelve to seventeen minutes; control, five minutes.

March 6: 1. Coagulation time (Brodie) was from seventeen to eighteen minutes. 2. Blood + calcium chlorid, 5 per cent. in normal salt solution, was unclotted in thirty-one minutes. 3. Blood + a small drop of normal human serum, twenty-four hours old, resulted in coagulation in seven minutes. 4. Human serum, diluted 1:10 with saline + patient's blood, resulted in coagulation in seventeen minutes. 5. Human serum, diluted 1:5 with saline + patient's blood, resulted in coagulation in ten minutes. 6. Undiluted serum + patient's blood, as in 3, resulted in coagulation in seven minutes. These tests were repeated by the slide method with approximately the same results. Skin reactions with buckwheat and coffee were negative. Milk was suggestive.

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* This work was done by Dr. Swann during the first half of 1914, his death preventing its continuation and his investigation of other cases of urticaria along this and other lines. On this one case, however, he left complete notes, from which this report has been written. It has been necessary only to wait a sufficient length of time and to make a few final observations in order to be sure that the good results have persisted.

1. Fox, Howard: Autogenous Serum in the Treatment of Psoriasis, The Journal A. M. A., Dec. 19, 1914, p. 2190.

2. Gottheil, W. S., and Satenstein, D. L.: Autoserum Injections in Certain Obstinate Dermatoses, Med. Rec., New York, 1914, lxxxv, 620; The Autoserum Treatment in Dermatology, The Journal A. M. A., Oct. 3, 1914, p. 1190.

3. Hilario, J. S.: A Contribution to the Autoserotherapy of Certain Diseases of the Skin, Jour. Cutan. Dis., 1914, xxxii, 780.

March 8: The patient felt better. There had been no hives for three days. The diet had been increased. Milk, coffee and pepper were the only articles prohibited.

March 13: There was an attack of hives this morning with pain, swelling and redness of the left thumb joint. Blood pressure was 135. Weight was 117. Blood-platelet count was 200,000. The coagulation time by both the slide and Brodie methods varied between fourteen and seventeen minutes. The coagulation time of blood + old human serum was the same, but the clots were firmer and more solid.

March 23: Coagulation time was nineteen minutes. The patient felt and looked better. There had been no hives since the last note. The weight was 119 pounds, blood pressure 145. The patient began taking cod-liver oil March 19.

March 30: The patient had had hives every day off and on for five days. The coagulation time was from sixteen to nineteen minutes. The weight was 120 pounds. The patient had moderate hives last night with a swollen and painful finger. Report on stool of March 25 was: Dark brown, pasty mass. No mucus. Faintly acid. No blood. Urobilin moderate. Carbohydrate fermentation considerable. Trypsin moderately diminished, digestion in twenty-four hours. Amylopsin normal. Microscopic examination revealed no pus or red blood cells; no ova or parasites; many muscle fibers showing marked striations; many fatty acid crystals; few fat globules and very little starch. Smears showed Gram-positive organisms present in about 50 per cent. of the total number.

April 6: There were moderate hives last night with swollen and painful finger and elbow. Pain was severe to-day. The coagulation time was nineteen minutes, after epinephrin, fourteen minutes. The blood pressure was 138. Five minims of epinephrin were given.

In seven minutes pain and stiffness were better. Blood pressure was 130.

In ten minutes there was no pain. Stiffness was better but numbness persisted.

In seventeen minutes numbness was less. Blood pressure was 130.

In twenty-five minutes numbness was worse again. Blood pressure was 125.

In seventy-five minutes pain returned again in the finger and thumb. Seven minims of epinephrin were given.

In four minutes the pain was better. Blood pressure was 125. In eight minutes the pain was gone.

In ten minutes the pain returned to a slight degree, but did not become severe. Four hours later the pain was practically gone. There was slight numbness in the fingers. Blood pressure was 138.

As the patient continued to have hives throughout the preceding period of observation, it became necessary to find some means of relieving her. Careful diet had had no appreciable effect. Owing to the fact that the patient's coagulation time was considerably prolonged and that the addition of human serum to her blood made the coagulation take place in approximately normal time, the idea of the intravenous administration of human serum presented itself and was decided on. At the time it was not known that this had been previously done in one or two similar cases. Accordingly, her brother's blood was tested in every way and found suitable.

April 7: One c.c. of the brother's serum was injected subcutaneously. As there was no reaction in forty-five minutes, 8 c.c. of the same serum was injected intravenously. There was no reaction.

April 15: Coagulation time was from twelve to fifteen minutes. Twenty c.c. of the brother's serum were given intravenously. One hour later the coagulation time was fifteen minutes. On the day following the first injection the patient had a slight attack of hives which vanished spontaneously. There were none again until April 11, when she was awakened by hives and had pains in the fingers. The attack lasted three or four hours, and was so bad that 5 minims of epinephrin were given. In about half an hour the hives were completely gone. They returned in twelve hours, but disappeared immediately on repetition of the epinephrin. April 12, the patient had an attack in the morning and in the evening, each attack yielding promptly to epinephrin. There had been no recurrence until this morning, when there was an attack with pain. In fifteen minutes after 5 minims of epinephrin had been taken, all symptoms disappeared.

April 17: There had been no hives since April 15. The patient felt better and stronger. Coagulation time was from twelve to fifteen minutes.

April 22: The patient had been well and had had no hives until April 19, when they suddenly appeared during the day and persisted until 10 p. m. During the evening of April 20 the patient had some red blotches but no wheals. There was little or no itching. April 21 blotches again appeared, but they were not severe. To-day the blotches had been worse. There had been no pain since the last injection of serum. The third dose of serum was given to-day, 20 c.c. intravenously.

April 23: The patient had hives yesterday until bedtime, when they disappeared. She is much better to-day. There are no hives or itching. The fourth dose of serum, 20 c.c. intravenously, was given. This serum was thirty hours old. Half an hour after the injection the coagulation time was from seven to nine minutes.

April 27: The patient felt much better. There had been no hives, itching or pain since April 22. The coagulation time was ten minutes, the weight 120 pounds.

May 8: There had been no hives until May 1, when the patient had a mild attack late in the evening, not bad enough for epinephrin. They did not keep her awake. There was a slight recurrence May 2, and on the following day they were worse and accompanied by pain in the fingers and toes. Since then the patient had had slight attacks off and on. She felt very well. This weight was 124 pounds, the coagulation time ten and one-half minutes.

May 13: There had been no hives since May 8. The patient felt very well. The coagulation time was fifteen minutes. The fifth dose of serum, 20 c.c., intravenously, was given.

May 14: The sixth dose of serum was given to-day, 10 c.c. intravenously.

May 15: The weight was 124 pounds. The patient felt very well. There had been no hives since May 8. The coagulation time was twelve and one-half minutes.

May 21: The patient felt very well. There were no hives. The coagulation time was seven and one-half minutes.

June 4: The patient felt very well. There were no hives.

June 13: The patient was perfectly well. There was no suggestion of hives. The coagulation time was four minutes, control six minutes. The blood pressure was 160.

June 23: The patient, June 20, had eaten part of a radish. Almost immediately it began to "repeat," and she had cramps, then diarrhea and a little indigestion until yesterday. June 22 she had a few little red spots on the hand, foot and about the waist. They were very few and not like hives. She also had some pains in the joints. To-day the spots had disappeared, but there was a little tenderness in the joints of the hands and feet, but nothing else. The coagulation time was four minutes. Control from 5 to 6 minutes.

October 11: The patient had had a fine summer and felt very well. She had had no hives. There had been an occasional twinge of pain in her joints. The coagulation time was four and one-half minutes.

Conservation of Resources.—The real thing that we have to conserve in America is the American people, their energy, their elasticity, their originative power, their capacity to hope and to achieve.—Woodrow Wilson, quoted by Irving Fisher, Memorial Relating to the Conservation of Human Life.

PULSUS ALTERNANS DETECTED BY THE SPHYGMOMANOMETER

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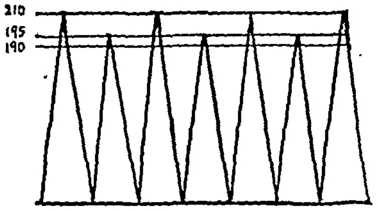
It is a matter of common observation that in many conditions, notably cardiac arrhythmias, the sphygmomanometer will often detect the fact that in a given heart the beats may vary in strength, some strong beats pushing through to the artery at the wrist, though the pressure of the manometer cuff is sufficient to cut off all those that are weak or of average power. The arrhythmia of mitral stenosis when auricular fibrillation has set in is a good example. In the hypertension of chronic nephritis or of arteriosclerosis, the same phenomenon may be encountered.

When the systolic pressure is being tested in a patient in whom an alternating pulse is present, a manometer pressure may be reached that cuts off every other beat—the weaker beat—thus halving the rate of the pulse at the wrist. Increasing the pressure on the brachial artery, by still further inflation of the cuff, of course blocks all the beats. Then slowly letting out the air, the point is reached at which the stronger comes through; when still more air is allowed to escape, another point is met where the alternate, weaker beat is perceived, thus doubling the pulse rate, that is, reestablishing the original rate. The difference in strength between these beats, when thus controlled by the sphygmomanometer, which exerts a pressure just below the maximal pressure for the weaker beat, is relatively great, and this difference is plainly perceptible to the palpating finger on the radial artery. The test may also be made by the auscultatory method of using the blood-pressure apparatus.



At 210 mm. Hg, no pulse is felt at the wrist. Below 210 and above 195, the stronger beat is felt. Below 195, for example at 190, the pulse rate doubles and the beats are alternately strong and weak.

As illustration, a man of 45 with large heart, cardiac asthma at night, albumin, casts and albuminuric retinitis, clearly has a high blood pressure. No irregularities in the rhythm or difference in strength of the pulse beats are made out by ordinary palpation of the radial artery. The pulse is 80 to the minute. When the pressure of the manometer reaches 195 mm. of mercury, the radial pulse drops to 40 and remains at that rate until 210 mm. is reached, when it disappears. On testing in the reverse order, above 210 the beat at the wrist is lost; from 210 down to 195 the strong beats come through at the rate of 40 per minute; below 195 the beats are 80 per minute, the new, added beats being perceptibly feebler than those coming through at 210 (see diagram). The pulse is clearly of the alternating character, and the sphygmomanometer shows what the finger alone at the wrist could not detect. At times the stethoscope, sphygmograph, polygraph or electrocardiograph may be necessary to decide as to whether the condition is due to dicrotism, extrasystole, etc.; but in most cases the alternation of the pulse can be made out in the manner described. The information afforded is not always essential, yet it is of help in making a prognosis, the pulsus alternans being rightly regarded as often an evidence of serious impairment of the muscular efficiency of the heart.

So far as I know, this method has not been described by others. If it has, my reference to it will, by repetition, emphasize a simple yet fairly satisfactory means of detecting pulsus alternans.

122 South Michigan Avenue.

RUPTURED APPENDIX AT FULL TERM PREGNANCY

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Mrs. E. J. P., aged 24, German, housewife, married six years, mother of two children, aged 4 and 2 years, had typhoid three years ago. She has had recurrent attacks of appendicitis during the last two years, all very slight, however, and none during the previous eight months.

I was called on Saturday night, April 19, 1913, to attend the patient, as she had expected, during childbirth. On my arrival at her home I found my patient sitting in a chair with her hands over the lower abdomen and complaining of severe pain down low, especially over the right side. She was placed in bed and prepared, and an examination made of the cervix, which showed a slight degree of dilatation, about ¾ inch; the head was not engaged, however, and I felt certain, as the result of my examination, that there would be no need for my services for some time. I went home, leaving orders to be called if any change seemed to take place. I was not called again until Sunday afternoon at 3 o'clock. I found my patient still in severe pain and learned that she had been so ever since I had left her the day before. She had a temperature of 103.6 F.; the pulse was 128. I then made a thorough examination and found the cervix just about as it was at the time of my previous examination, but, on closer survey with my finger, I thought I felt, through the wall of the vagina, what seemed like an abscess located in the region of the appendix. I covered the ground very thoroughly and made a diagnosis of suppurative appendicitis with possible rupture of the appendix.

The patient was removed to St. Mary's Hospital and placed in bed with ice-caps over the appendiceal region, with the hopes of preventing any further trouble until after the child was born. On Monday, however, the conditions were no better, and with the temperature at 104, pulse 140, and slight dilatation, I could see no other way out than to go in and relieve the abscess and drain, at least. At 1:30 p. m. Monday I operated, doing a complete appendectomy, and cleaned out the pus which had formed freely about the much enlarged vessels and ligaments which are at this stage of pregnancy far from the size we generally find them. Hoping to avoid later trouble I placed a rubber tube drain in the culdesac and one in the groin. The incision was closed tightly around the drains, especial care being taken to close the fascia so as to get a good union and avoid separating during the severe strain which was sure to come at the time of childbirth. It was quite difficult to get these parts together, and would have been impossible had I not made a transverse incision through the fascia, a fact which, I think, saved the situation.

Tuesday morning the temperature was 99.3, pulse 88. At noon the labor pains began, and at 12:30 p. m. the patient was put to sleep and an 8 pound 6 ounce boy safely delivered. We had no trouble with the wound. Everything kept its place. The following day the patient complained of severe pain in the right side, due, I think, to the operation and the large drainage tubes, which were still in place. Considerable pus drained from the wound, but the temperature remained about normal and the mother went on to complete recovery. She left the hospital May 4, together with her baby boy.

One thing was very noticeable, and that was the dislocation of McBurney's point in "so pregnant a woman." It calls for some close calculating in locating the point for incision.

Preventogram.—Good food, well chewed, is better than much food quickly bolted.—*Buffalo Sanitary Bull.*

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 662)

VIII

B. DEPRESSANTS: 5. OF THE HEAT CENTERS—(Continued)

ANTIPYRETICS AND ANALGESICS

ACETANILID, ANTIPYRIN AND PHENACETIN GROUP

The introduction of the antipyretics and analgesics of this group affords one of the most interesting chapters of medical history. The high cost of quinin, which resulted in its adulteration, led to efforts to discover a method of preparing it synthetically, and in addition to the cost of the alkaloid, its bitter taste, and its relative insolubility, which interfered with its use by subcutaneous injection, served as a stimulus in the search for a substitute for it. While these efforts were unsuccessful so far as the immediate aims were concerned, they did lead to the discovery of numerous synthetic compounds, including the antipyretic analgesics which have come into use during the past thirty years. Curiously, the best drugs of this group were among the earliest discovered, and the exploitation of the newer members has been largely mercenary.

Quinolin was used as the starting-point in the search for synthetic quinin or a substitute, because it results from the decomposition of quinin, and it retains the antipyretic action of the parent substance, but it is too toxic for therapeutic use.

Kairin and thallin were among the first of the synthetic antipyretics; they soon dropped out of use because of their toxicity. Antipyrin was prepared in 1884 by Knorr, who used phenyl-hydrazin as the starting-point, and who supposed that antipyrin contained two quinolin rings. It is now known to be phenyl-dimethyl-pyrazolon.

Anilin was known, as far back as 1861, to have antipyretic actions, but its toxicity precluded its therapeutic use, and the attempt was therefore made to utilize its antipyretic action while reducing its toxicity by introducing various radicals into the molecule. Acetanilid, which results from the introduction of an acetic acid radical into the anilin molecule, was one of the earliest of these synthetic anilin derivatives, and it continues to be the cheapest and one of the best.

Paramidophenol, very closely related chemically to anilin and phenol, was found in the urine after the administration of one of the antipyretics, and this led to its use as a starting-point in the preparation of synthetic substitutes for the older members of the group. The introduction of an ethyl group into the paramidophenol forms phenetidin, and the introduction of an acetic acid radical into this forms acetphenetidin, or, as it is commonly called, phenacetin.

The antipyretic and analgesic actions of the drugs of the acetanilid and phenacetin type result from certain compounds, such as paramidophenol, which are split off in the body from the parent drug. If they are split off too rapidly the action is too violent, and if they are split too slowly the action is too feeble; hence the therapeutic value of a member of this group depends on a gradual splitting of the drug in the body. Innumerable compounds may be formed by the introduction of other aromatic acid radicals in place of the acetic, or other alkyl groups in place of ethyl, but none of these has proved superior to acetanilid and phenacetin. Some are split very slowly and therefore have very little toxicity, but they are also less active therapeutically, and some are more active therapeutically, but are also more toxic.

Fraenkel says that no cheaper and better substitute for antipyrin and phenacetin can be prepared from the parent substances, and that it is purposeless to continue to multiply these. While we should continue to search for improved antipyretics and analgesics, such improvement can come only with development along wholly different lines.

The various members of the group have closely similar actions, but they show considerable quantitative differences in activity.

Their classification as fever narcotics indicates their depressant action on the higher parts of the brain, and in addition to their depression of the heat-regulating centers, it is probable that they cause an actual paralysis of certain paths concerned with the perception of pain, because even small doses are usually as effective as larger ones in relieving certain forms of neuralgia. They have a slight tendency to induce sleep, and this tendency becomes more pronounced when one remains quiet after relief from headache or other pain, but the mental faculties may remain alert when one exercises them after the relief of headache.

Large doses cause collapse, with disturbance of the respiration and circulation. The heart may become feeble and death may result from cardiac failure, but this is rare, and it never occurs after acetanilid, antipyrin or phenacetin, except when overdoses are taken by enfeebled patients, or excessive amounts by those suffering from minor illness.

Severe, but not fatal, collapse is not infrequently seen after moderate amounts of these members of the group which are decomposed more rapidly than the three members just mentioned. If such rapidly acting members of the group are used, it would be better to employ minimal doses and repeat these more frequently than with the more slowly acting ones, but there seems to be no reason for their continued use.

These drugs do depress the heart somewhat, but this action is overrated by manufacturers of nostrums who claim that their preparations lack this cardiac effect because it is overcome by the addition of caffein or other supposedly antagonistic substance. Curiously, caffein and the antipyretic analgesics of this group have a synergistic action on the heart; hence large doses of such compounds are, if anything, more dangerous than the drug which they are intended to displace.

The antipyretic analgesics produce cyanosis when large doses are used, or when the smaller doses are used continuously, and since they were known to injure the heart to some exent, it was supposed that this injury sufficed to explain the cyanosis. We know that the cyanosis is usually due to the formation of methemoglobin by the products of decomposition of the antipyretics, and the more rapidly they are decomposed in the body, the greater is the action on the hemoglobin. The milder actions leave the corpuscles intact, but with the more violent action the corpuscles are broken down. This does not take place when the drugs are mixed with blood in a test-tube, because the drugs are not then decomposed.

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* This is the eighth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

Those antipyretics of this type which are devoid of the action on the blood are also therapeutically useless, because the paramidophenol, or analogous substance, which causes the formation of the methemoglobin is also responsible for the antipyretic action and only those which are decomposed too slowly to exert a pronounced antipyretic and analgesic action are devoid of the action on the blood.

The antipyretics cause dilatation of the vessels of the skin; this promotes sweating, which is useful in the reduction of temperature; in case this is excessive, atropin should be administered in small doses.

The antipyretics, like narcotics in general, lessen metabolism and therefore the production of heat, but this is of much less importance than their action on the heat-regulating centers, for, as previously stated, it is through their influence on the loss of heat that the temperature is regulated for the greater part.

ABSORPTION AND EXCRETION

Antipyrin is very soluble in water, while acetanilid and phenacetin are only slightly soluble, but all are absorbed fairly readily from the gastro-intestinal canal, and are nearly always administered by the mouth.

The rate of excretion appears to depend on the rate of decomposition to a certain extent, and none of the drug appears in the urine unchanged after the taking of moderate amounts of acetanilid, which is decomposed more rapidly than phenacetin.

When the urine of a patient who has taken one of these drugs is exposed to the air, it may assume a dark color because of the oxidation of certain of the decomposition products.

THERAPEUTIC DOSES

The antipyretic analgesics are not used so frequently as they were formerly for the reduction of body temperature alone, but they are used in much the same conditions for the relief of pain, such as that occurring with influenza; for headache, which accompanies so many types of fever; and to allay nervousness, thereby securing rest and sleep which are essential for the patients' well-being and the want of which is so injurious to the heart and nervous system.

They are sometimes used for the reduction of fever, when this is excessively high, but even in such cases the benefit derived is probably due mainly to one or more of the actions just mentioned.

They are widely used for the relief of headache arising in the greatest variety of conditions. They sometimes afford prompt relief with small doses, and often fail even when large doses are used. In fact, if a small dose fails to relieve headache or neuralgia a large dose seldom accomplishes this.

The wide-spread use of these agents by the laity for the relief of all forms of headache and neuralgia and for pain which often attends menstruation should be discouraged because of the danger of their indiscriminate use, and especially because of the frequency with which overdoses are used in unsuitable cases. The patient who has once obtained relief through the use of a given drug supposes that subsequent failure can be explained only on the basis of his having taken an insufficient amount, with the result that he repeats the dose many times. There is also the danger of the formation of the habit, whenever the drug is used in chronic conditions attended with headache or neuralgia.

Antipyrin is applied locally in concentrated solution as a styptic in hemorrhage of the nose. The antipyretic analgesics have a more limited field of action than morphin, being of little value in pain due to inflammation, but they deserve the preference over opium and morphin in those conditions, such as neuralgia, which they do relieve.

They should be used with caution in debilitated patients in whom the danger of collapse is exceptionally great. Some persons show an idiosyncrasy toward them and exhibit rashes or exanthemas after even moderate doses.

DOSAGE

The average dose of acetanilid is 0.2 gm. (3 grains), but it is better to use an initial dose of 0.1 to 0.15 gm. (1½ to 2 grains) and repeat cautiously when necessary. Antipyrin is given in slightly larger amounts, the average dose being 0.25 gm. (4 grains), and phenacetin is used in somewhat larger doses than antipyrin, the full dose being 0.5 gm. (8 grains), but it is seldom necessary to give more than 0.3 gm. (5 grains) for the relief of neuralgia or headache. The latter dose may be repeated at intervals of three hours until several doses have been taken when necessary. All of the antipyretics are more effective in reducing the temperature if given during a natural remission, and the later in the course of the remission, the smaller the dose required for a given effect.

It is probable that there is little difference in the danger of the several antipyretics mentioned above in the doses given. There is no question, however, that phenacetin is the least dangerous in equal amounts, but since it is also the least active therapeutically, this does not constitute an advantage with the proper regulation of the dosage. Many of the older and some of the later posologic tables give doses of the antipyretic analgesics which can hardly be considered entirely safe. While such doses may be used in certain cases, they are not to be recommended for routine procedure.*

PROPRIETARY PREPARATIONS AND MIXTURES

The Council on Pharmacy and Chemistry gave its attention soon after its organization to several of the more widely advertised mixtures which were then claimed to be synthetic preparations. These preparations were found to be simple mixtures of acetanilid, caffein and sodium bicarbonate or other alkalies, and usually contained small amounts of tartaric or citric acid. The mixtures cost about 2 or 3 cents an ounce and were commonly sold for a dollar an ounce at wholesale. Since the enactment of the food and drug law in 1906 the composition of some has been changed, acetphenetidin being used in place of acetanilid. This further emphasizes the fact that manufacturers of nostrums are in business primarily for profit, with little or no consideration of the interests of the consumer or of the physician who is utilized as an advertising medium for the several preparations.

No one will deny that mixtures containing coal-tar analgesics relieve pain in many cases. Since they are all sold direct to the public, the danger resulting from self-medication is obvious, because it has been definitely shown that mixtures containing caffein and one of the antipyretics requires a special caution in their use. It is unfortunate, to say the least, that the Pharmacopeia of the United States should have countenanced these mixtures to the extent of having recognized the compound acetanilid powder which is one of this type.

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* Owing to lack of space the materia medica of acetanilid, acetphenetidin and antipyrin is omitted. It will be included when the series is published in book form.

In addition to these pretended synthetics, which are unworthy of further consideration, there have been introduced innumerable synthetic preparations of the general type of phenacetin or acetanilid with some added advantage, but unfortunately such advantage is invariably offset by disadvantages. For example, when one of these preparations is less toxic it is also invariably less active therapeutically. It is unnecessary to discuss these substances in detail, for, as we wish to reiterate, there is none which deserves the preference over acetanilid, antipyrin and phenacetin.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 665)

XXI

DIPHTHERIA (CONTINUED)

F. Care of the Heart

Although it was long considered that heart failure in diphtheria was due to vasomotor paralysis, or to action on the vasomotor center, it has been shown by Porter and Pratt[1] that such is probably not the case: that heart failure is probably due to the action of the toxins on the heart itself. Dr. F. W. White of Boston long ago[2] showed that the heart was frequently affected more or less seriously in diphtheria. White also quotes many other authorities showing that myocarditis is not an infrequent complication, that valvular disease may occur from diphtheria, and that even a chronic myocarditis may persist, or a valvular lesion may persist for months or even years, or for life. White and Smith studied the hearts in a thousand cases of diphtheria, and came to the conclusions that moderate disturbance of the heart is very common in diphtheria, and that persistence of cardiac defects often lasts from two to six months; but generally cardiac disturbances from diphtheria become permanently cured. The mitral valve is the one most frequently diseased, and if a lesion is caused, it is generally insufficiency. About 60 per cent. of the patients with diphtheria show an irregular pulse, and the younger the patient, the more liable he is to have this heart irregularity. It may occur even in mild cases. These investigators found that out of 1,000 cases 878 had a heart murmur of some kind at some period of the disease, either at the apex or at the base. The murmurs were generally systolic. These murmurs usually clear up and are not generally significant of valvular lesions. The murmur at the apex is doubtless due to a relative insufficiency of the mitral valve, because of slight dilatation of the left ventricle. In this investigation, necropsies showed that endocarditis and pericarditis are extremely rare complications in diphtheria.

Dr. G. M. Smith[3] reviews more recent investigations, made on the hearts of diphtheria patients. He quotes Rohmer as concluding that in diphtheria, pathologic changes may occur in the auriculoventricular bundle, but that there is no specific action of the diphtheria toxin on the bundle of His. However, diphtheria toxins may so affect the connecting bundle from a functional point of view that heart-block can be produced, even without demonstrable anatomic lesions.

Clinically, the gallop rhythm, with or without vomiting and epigastric pain and tenderness, is a bad symptom in diphtheria. This gallop rhythm of the heart is very serious, and if accompanied by vomiting, the prognosis is very bad. Hume and Clegg,[4] after an investigation of 573 cases of diphtheria, declare that any form of arrhythmia of the heart (except sinus arrhythmia) in diphtheria indicates that the heart muscle or nerves are pathologically disturbed. This may occur even when the diphtheria is apparently mild.

After a patient is apparently well from diphtheria, if he has been severely ill, and especially if the case has been neglected and a large amount of toxins have been absorbed, cardiac failure may occur any time from the second to the fifth week. Symptoms of late cardiac weakness are often a slow, weak pulse. Such hearts, however, become rapid on the least exertion. Such patients are often very pale, and there are liable to be more or less gastro-intestinal disturbances.

There can be no question that the effects on the heart in diphtheria are due to the Klebs-Loeffler bacillus toxins; consequently, if antitoxin in sufficient dose is given early, the toxic effect on the heart will probably rarely occur. Consequently, cardiac deaths in diphtheria will be less and less frequent with the early proper administration of antitoxin.

The most important treatment of cardiac complication is rest, and prolonged rest. A patient who has shown cardiac inflammation of any kind, or cardiac irritation during diphtheria, should have a prolonged rest in bed and a very slow convalescence. The small dose of strychnin suggested above as a nerve stimulant is probably sufficient. If the heart is very rapid, it may be unwise to give even this small dose. Larger doses do not seem to raise the blood pressure during illness, and strychnin in large doses as a cardiac tonic, in prolonged weakness, is not so successful as has been thought. In an apparently acute failure, a fair-sized dose, 1/40 grain for a child 10 years old, may be given hypodermically; but to persist in large doses of strychnin is inadvisable. Digitalis is not indicated, and alcohol should not be given. Caffein and camphor may be worth while; but the main thing is absolute rest, small amounts of food, the least possible disturbance for bathing, feeding, defecation and urination, and no prostrating purgatives.

G. After Rest

A patient who has recovered from diphtheria, however mild it may have been, should have, for the first two weeks, at least, a carefully watched convalescence. Strenuous exercise should be avoided, and the heart should be carefully examined before the patient is allowed to return to his usual work, school, or play.

H. When to Raise the Quarantine

This has already been sufficiently discussed. Boards of health vary in their requirements. The safest rule would seem to be to release the patient from quarantine after four negative cultures have been taken, each one two days apart; one of the cultures should be taken from the nostrils. The swab specimens should be procured by a physician, and should be taken several hours after any antiseptic gargles have been used. Also the last culture should be taken from back of the tonsils and from crypts, if any are present.

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[1] Porter and Pratt: Am. Jour. Physiol., 1914, xxxiii, 431.

[2] White, F. W.: The After-Effects of Diphtheria on the Heart, The Journal A. M. A., Oct. 21, 1905, p. 1243. White, F. W., and Smith, H. H.: Boston Med. and Surg. Jour., Oct. 20, 1904, p. 433.

[3] Smith, G. M.: A Review of Some Recent Publications on Anatomy and Pathology, Am. Jour. Dis. Child., April, 1913, p. 322.

[4] Hume and Clegg: Quart. Jour. Med., 1914, viii, 1.

I. Fumigation

As stated, formaldehyd or other fumigation is unprofitable in diphtheria, but may be added to thorough germicidal cleaning of the room and its contents. This is a decision for the local board of health.

J. Paralysis

With the early injection of a sufficient dose of antitoxin, diphtheria paralysis will become less and less frequent. The paralysis of the soft palate, which used to be so frequent, is already becoming infrequent. This paralysis occurs early, between ten and twenty days from the beginning of the illness. The treatment consists of tonics, small doses of strychnin, the best of nutrition, fresh air, sunlight, rest, and prolonged convalescence. The general paralyses, which are now rarely seen, were more serious, and occurred later. They are slow in recovery, and besides general treatment, require massage and electricity.

K. Diseased Tonsils

Quite probably diseased tonsils cause a susceptibility to diphtheria, as they certainly do to follicular tonsillitis. After complete recovery from a diphtheria attack, when the general condition is perfect, and the heart is in good condition, operations should remove all portions of tonsils that show disease. Whether complete enucleation should be done, or only diseased portions should be removed, and whether or not the capsules should be left, are subjects for an expert decision.[5]

LARYNGEAL DIPHTHERIA

Membranous croup is laryngeal diphtheria, and as soon as the diagnosis can be made that there is exudate in the larynx or laryngeal region, antitoxin should be given in large dose, without waiting for a decision from the laboratory that the Klebs-Loeffler bacillus is present. The only safe place for a patient with laryngeal diphtheria is a contagious disease hospital, where expert skill in intubation and, if necessary, in tracheotomy can be quickly obtained. The main danger from diphtheria in this location is suffocation.

The toxemia is not great, and the absorption is much less than in nasal, nasopharyngeal, or even in tonsillar diphtheria.

The best of nutrition is important, as exhaustion from labored breathing is likely to occur. The atmosphere of the room is better moist, on account of the membrane becoming dry and causing more obstruction before it loosens and is coughed up. Just how much local steaming of the throat, or inhalation of various medicated solutions should be given, is to be decided by the individual physician. The main advantage is doubtless from the vapor of water.

The main requirements to be remembered in laryngeal diphtheria are the administration of an immediate large dose of antitoxin; intubation by a skilled operator as soon as indicated; a trained nurse skilled in intubation cases, if such can be obtained; the ability to recall quickly the physician who intubated if the tube is coughed up; the immediate removal by the nurse of the intubation tube if it plugs up, and the quick performance of tracheotomy by the surgeon, if such a measure is needed.

SEPTIC SORE THROAT

For some years there have been reported in England epidemics of septic sore throat, some of which have been distinctly traced to infected milk, and all of which probably develop from that source. In the last few years several cities and towns in this country have suffered from epidemics of this character, and in every instance it has been traced to milk from one dairy, and ultimately to one or more diseased cows. The disease that causes such infection is an inflammation of the milk glands, a mastitis, or an inflammation of the udder termed garget. Another possible source for the dissemination of this germ is an infected throat of the milker, or of some one who handles the raw milk.

The germs found in the inflamed udders, in the raw milk, and in the throats of those infected are the same, namely, the *Streptococcus pyogenes*. The largest epidemics have occurred in Boston, Baltimore and Chicago, and in all, about 25,000 individuals have been attacked. The death rate is small, and is due to complications. An epidemic occurring in Boston is described by Winslow,[6] the Chicago epidemic by Capps,[7] and an epidemic in Courtland and Homer, N. Y., by North, White and Avery.[8]

The clinical symptoms have been the same in all of these epidemics, and Capps states that the throats generally show intense hyperemia without a grayish exudate. The cervical lymph glands enlarge, and may suppurate; there is extreme prostration, and a tendency to relapse. The complications are inflammation of the middle ear, abscess around or about the tonsils, and erysipelas or other skin eruptions. The most dangerous and fatal complication is peritonitis, and there may be fatal septicemia, with localization in the lungs. Endocarditis, myocarditis, arthritis, and nephritis may occur as complications in this septic process.

Means of prevention of septic sore throat in epidemics must include a more frequent bacteriologic examination of the udders of cows and of the throats of those who handle raw milk. Pasteurization of milk would prevent these germs from causing infection.

The treatment of these septic sore throats is not different from that of follicular tonsillitis, namely, dilute hydrogen peroxid solutions 1 : 4, immediate subsequent washings with mild alkaline cleansing solutions, and the local application of a weak iodin solution, as Lugol's solution (too strong iodin preparations might increase the swelling and hyperemia of the throat).

On account of the prostration, the patient should receive plenty of nutriment. The bowels should be moved daily. Pain should be stopped, if it is troublesome, by codein or morphin, if deemed advisable. High temperature should be treated as seems best, and the complications combated as they occur. Infection of others is prevented by the same methods as those described for diphtheria. The blood in this disease should be studied, not only to determine the amount of leukocytosis, and the type that is probably present, but also to determine the amount that gives a favorable prognosis. Such studies may give a clue as to the possible value of an autogenous vaccine.

(To be continued)

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[5] French, Thomas R.: New York Med. Jour., Dec. 5, 1914, p. 1097.

[6] Winslow: Boston Med. and Surg. Jour., 1911, clxv, 899.

[7] Capps, Joseph A.: Epidemic Streptococcus Sore Throat—Its Symptoms, Origin and Transmission, The Journal A. M. A., Sept. 6, 1913, p. 723.

[8] North, White and Avery: Jour. Infect. Dis., January, 1914, p. 124.

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SATURDAY, FEBRUARY 27, 1915

THE REDNESS OF CURED MEATS

The bright red which is exhibited by good meat is due in part to the oxyhemoglobin of the blood remaining in it, together with the comparable red pigment which is inherent in the muscle itself, even when it is completely freed from blood. A familiar effect of cooking meat is the pronounced change in color which it undergoes from the application of heat. The reddish tinge changes to a dull brown owing to the disintegration of the oxyhemoglobin, with the liberation of a protein component along with its color-producing group, hematin. A similar alteration is sometimes brought about when meats are cured with ordinary salt brine. Meats preserved in this way or by the application of heat alone, as in the canned meat industry, therefore assume an appearance quite unlike that of the flesh in its raw state.

On the other hand, it is a familiar fact that many meat products offered for sale, and likewise some of those prepared in the household, not only exhibit a bright red, but even retain this practically unchanged after cooking. Indeed, the color may even be intensified. This is true whenever potassium nitrate, or saltpeter, enters into the process. The redness of fresh meat is not destroyed after curing it by means of a mixture of common salt and a small proportion of saltpeter. This feature, in addition to the preservative action of the nitrate, is exhibited in the production of "corned" beef and other similar preparations. Canned corned beef is distinctly red.

The value of the long-practiced saltpeter process of curing meats is not confined to the meat-packing industries of commerce, but has long enjoyed a vogue in the household handling of flesh products that are to be kept some time before use. A recent summary of current knowledge regarding the coloring matter of raw and cooked salt meats by R. Hoagland[1] of the Bureau of Animal Industry in Washington makes it evident that the action of saltpeter in the curing process is primarily to cause the formation of the bright red and decidedly stable nitric oxid hemoglobin. The development of this compound is brought about by the presence of nitrates. The value of saltpeter as a flesh-color preservative is dependent on the reduction of the nitrate to nitrite.

Precisely as hematin, the color-yielding component of oxyhemoglobin, can readily be converted to a well-known reduction product, hemochromogen, so nitric oxid hemoglobin, the coloring matter of cured meats, can be changed under certain conditions to nitric oxid hemochromogen. The latter is commonly a result of the cooking process, and therefore represents the color of cooked salt meats. Hoagland states that it is very probable that in the case of meats which have been cured with saltpeter, or of meat food products in which saltpeter has been used in the process of manufacture, the reduction of nitric oxid hemoglobin to nitric oxid hemochromogen takes place to a greater or lesser degree, depending on conditions of manufacture and storage. The two compounds are so closely allied that their differentiation in one and the same product is not a matter of great importance.

Some idea of the extent to which the preserved color of flesh products is due to the factors noted above may be gathered from the fact that it has readily been recognized in such widely used meats as smoked pork and ham, cured pork, dried beef, corned beef, salami and cervelat sausages. Under the present laws it has been ruled that saltpeter may be used pending further investigation regarding its wholesomeness. The cause of the striking color of meats cured with it has been understood by few persons in the past. With a satisfactory explanation forthcoming, the medical profession is now in a position to know the facts and to be able to conjecture the preliminary treatment which meat retaining characteristic hues has received.

WINE OF CARDUI ACTIVITIES

Turning the light into the noisome pit of charlatanry always stirs into squirming activity those who subsist, either as hosts or parasites, on such business. For nostrum exploiters champion that comfortable doctrine, "Let Us Alone"; they inscribe as their heraldic motto: *Laissez-faire.* To the public unacquainted with THE JOURNAL's educational campaign of the past decade, it might appear that the exposure of the fraud connected with the exploitation of Wine of Cardui was a veritable crusade into a new field. During the past few months it has been necessary, almost daily, to assure interested laymen that the Wine of Cardui articles were but incidents in THE JOURNAL's general propaganda of education relative to medical frauds. The amount of "fuss and feathers" displayed in this specific case is due to several causes—remote and proximate. The most important, probably, is the fact that the chief owner of the Wine of Cardui business is one of the most prominent and powerful laymen in the Methodist Church. Of almost equal importance is the fact that the Wine of Cardui business has been, and still is, enormously profitable. Then there is the incidental fact that the growing spread of prohibition that threatens the millions invested in the distillation of alcohol makes the fate of "patent medicines" of the alcoholic-tonic type—a business not as yet legally affected by prohibitory laws—one of tender solicitude to the distillers. Add to these reasons the further one that the nostrum evil is, to-day, before the bar of public opinion, and it is easy to realize that the Wine of Cardui suits against the Americal Medical Association and the editor of The Journal are causing a stir such as inevitably follows the lavish expenditure of large sums of money.

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[1] Hoagland, R.: Coloring Matter of Raw and Cooked Salted Meats, Jour. Agricultural Research, 1914, iii, 211.

An interesting story could be written of some curious coincidences that have occurred since the Chattanooga Medicine Company and its chief owner brought their suits. Articles appearing in the mouth-pieces of the "patent medicine" interests warning the public against the fell designs of the "Medical Trust" have been reprinted and widely circulated; nostrum-championing editorials of the "canned" variety have cropped out in those newspapers that may always be counted on to come to the defense of the "patent medicine" business; decoy letters have come to The Journal office from hypothetical "doctors," mailed from post-office addresses in villages in which the writers apparently rented a post-office box and to which they went in motor cars to get the "answers" that never came; detectives have posed as journalists seeking information about nostrums of the alcoholic-tonic type and have played the part of visitors to Chattanooga, solicitous (?) of the well-being of the new church organized after the split in the First Methodist Church of that city following the Wine of Cardui exposures; attempts have been made to "work" stenographers; efforts have been put forth to learn in advance the dates of public talks to be given on the nostrum evil under the auspices of The Journal—these are but a few of the many things that have occurred. Whether any of these occurrences bear any relation to the Wine of Cardui suits or are wholly or partly inspired by the general "patent medicine" interests, or whether they are simple coincidences, we leave for our readers to decide.

But to the medical profession the following synopsis of events will probably be of more interest than the trivial details of the "ways and means" of the nostrum business in defending its unwholesome brood:

1 *a:* The Journal publishes an article July 18, 1914, showing the fraud connected with the exploitation of Wine of Cardui.

b: Suit brought by the Chattanooga Medicine Company and J. A. Patten for $300,000.00 against the American Medical Association and the editor of The Journal.

c: The Journal publishes a second article Dec. 5, 1914, on the same subject.

2 *a:* Dr. Oscar Dowling, one of the trustees of the American Medical Association, in his capacity as President of the State Board of Health of Louisiana accompanies the State Health Train from New Orleans to Richmond, Va. The train carries among its health exhibits exposures of various nostrums including a card dealing with Wine of Cardui. A stop is made at Chattanooga.

b: Dr. Dowling is sued by the Chattanooga Medicine Company for $25,000.00, the papers being served on him before he left Chattanooga.

c: State Board of Health of Louisiana meets and upholds Dr. Dowling, and declares Wine of Cardui a fraud.[1]

3 *a:* The Limestone County (Ala.) Medical Society passes resolutions condemning the methods of the Chattanooga Medicine Company in soliciting physicians to testify for Wine of Cardui.

b: The Chattanooga Medicine Company sends legal representatives to Limestone County intimating that both the society and the individuals comprising it would be sued if the resolutions are not rescinded.

c: The Limestone County Medical Society "stands pat."

4 *a:* The Chicago City Club gives a Public Health Exhibition and among other exhibits has the American Medical Association educational posters on medical frauds, Wine of Cardui cards among them.

b: Local legal representative of Chattanooga Medicine Company attempts to bluff City Club into removing the Wine of Cardui posters.

c: Bluff "called." Nothing happens.

5 *a:* *Harper's Weekly,* in its series on fraudulent "patent medicines," gives some space to Wine of Cardui and its manufacturers.

b: *Harper's Weekly* sued for $200,000.00 by Chattanooga Medicine Company.

c: *Harper's* "comes back" in its issue of February 27.

SIDE-LIGHTS ON THE FUNCTION OF FERTILIZATION

It has long been customary to attempt the solution of some of the problems of protoplasm and the physiologic riddles of life by means of observations on lower organisms and simpler forms. The unicellular animals have afforded particularly useful and easily available objects for investigation from this point of view. Their supposedly simpler structure and more diffuse phenomena seem to render them particularly suitable to elucidate the more general properties of living matter. Among other questions, the problems of protoplasmic senescence and the significance of fertilization have seemed open to direct investigation in this field. In certain of the Infusoria, for example, reproduction proceeds by unprovoked cell division; but the frequent occurrence of conjugation, in all of the species, affords an instance of what may be looked on as the counterpart of fertilization in the higher forms.

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[1] See Propaganda Department, page 761, this issue.

Is conjugation an indispensable activity for the prolonged generation of these lower organisms? A few decades ago it seemed established that continued reproduction by fission or division inevitably results sooner or later in degeneration and death. The evidence then available all pointed against the "potential immortality" of the unrejuvenated infusorian protoplasm and made it appear as if conjugation was the sine qua non for the life of the species. In other words, reproduction by division apparently could not proceed indefinitely without conjugation or some other artificial stimulus. The unique studies of Woodruff at Yale University have at length furnished a quite different answer to the rôle of such extrinsic stimulation in the life of the unicellular organisms. When subjected to suitable culture conditions, *Paramecium,* for example, has the power of unlimited reproduction by division without conjugation. This is attested by the fact that Woodruff has maintained a race of this infusorian in a normal condition over seven years through more than 4,500 generations without conjugation or the use of artificial stimuli. The essential condition for this success lies in the use of a suitable culture medium; if this environment is appropriate, the continued health and reproduction of the organisms results. There may be variations in the rate of reproduction by division without conjugation because of some unknown factor in cell phenomena; but recovery from declines thus resulting are autonomous.

Quite recently Woodruff and Erdmann[1] have discovered that despite the absence of conjugation or any form of artificial environmental stimulus, the "pure" races of *Paramecium* undergo remarkable rearrangements in the cells from time to time. It appears that the rhythms in the division rate are the physiologic expression of internal phenomena which involve the formation of a complete new nuclear apparatus, by a definite sequence of normal morphologic changes which simulate conjugation. This nuclear reorganization, in essence, consists of a gradual disintegration and absorption of the macronucleus in the cytoplasm. Simultaneously a multiplication of the micronuclei is in progress. Certain of the resulting micronuclei degenerate, while the remaining one or two form the new macronuclear and micronuclear apparatus. This results in the reorganization of the cell without the fusion of two animals.

This peculiar reorganization process, involving the intermingling of nuclear and cytoplasmic substances occurring within the cell, has been termed "endomixis." It is followed by a slight acceleration of cell phenomena, and a new rhythm is initiated. The process described places some of the fundamental questions of cellular physiology in a new light. We are wont to think of fertilization in the higher organisms as having both a dynamic and a hereditary rôle. If it shall appear that the cell has an internal regulatory phenomenon, endomixis, which is self-sufficient for the indefinite life of the unicellular races—that "senile degeneration" and "physiologic death" in the lower forms are not inevitable without conjugation—fertilization is emphasized anew as a process which attends to the transmission of new qualities. The fertilization mechanism is thus made primarily to serve functions of variation and hereditary transmission. In relation to the fertilization process in reproduction, therefore, the emphasis may be placed more strongly than ever on what it means for heredity rather than for rejuvenation.

Every contribution to the factors involved in the reproduction of cells is likely to throw some light not only on the normal growth of organs and the organism as a whole, but likewise on the pathologic development of tissues as they are exhibited in neoplasms. We need not disparage such studies because to the untutored "practical" mind the phenomena of the lowly creatures possessing a relatively simple organization have little obvious importance. On the contrary, it is a triumph of science to feel great hope that in the immediately near future a notable advance will be made in our grasp of what Sir Michael Foster called "the nature of that varying collection of molecular conditions, potencies and changes, slimy hitherto to the intellectual no less than to physical touch, which we are in the habit of denoting by the more or less magical word protoplasm."

REGENERATION OF FIBERS OF THE CENTRAL NERVOUS SYSTEM

Complete anatomic and functional regeneration of fibers in the peripheral nervous system has been demonstrated, but as regards fibers of the central nervous system, complete regeneration has been regarded as doubtful. From recent work, however, there is evidence that both in experiment and in pathologic conditions a marked attempt at regeneration of central fibers takes place. Without going into an extended consideration of the exact manner of regeneration of the fibers, a review of some of the work which has led many to believe this possible may be of interest. Perrero[1] regards the question of regeneration of fibers in the central nervous system as settled now that it is possible by efficient staining methods definitely to distinguish axis cylinders from glia fibrils. He examined

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[1] Woodruff, L. L., and Erdmann, Rhoda: A Normal Periodic Reorganization Process without Cell Fusion in Paramaecium, Jour. Exper. Zool., 1914, xvii, 425.

[1] Perrero: Contribution à l'étude de la régénération des fibres nerveuses du système nerveux central de l'homme, Arch. ital. de biol., 1910, liii, 21.

the cord of a man dying twenty-nine days after fracture of the fifth and sixth cervical vertebrae; there was complete softening of the cord in these segments, but immediately about the softened area, numerous changes were found in the pyramidal tracts above and in the posterior roots and columns just below the lesion. On the ends of many of the axis cylinders were cones and balls, a result of proliferation of the structures at the peripheral end of the nerve. Fine black threads were observed running out from several of these cones, and other axis cylinders were found broken up into fibrils. The black threads and fibrils displayed a tendency toward plexus formation about the blood vessels. Perrero regarded these as regenerative processes and found them present to an almost equal degree at each end of the injured cord. The regeneration was not extensive enough to pass through the softened area of the cord.

Rossi[2] after experimental hemisection of the cord found marked evidence of regeneration and new fiber production, though never of sufficient degree to pass through the cicatricial zone that forms between the two stumps. Here also regeneration was in equal degree in the central and peripheral stumps of the cord.

Bielschowsky[3] studied the changes in compression of the cord and in tumors of the brain and cord. He found numerous cones and button-like swellings of the ends of the axis cylinders. These were especially prominent about the blood vessels in the marginal zones of the cord around degenerated and compressed areas. He believes regeneration of the fibers in the central nervous system possible, and holds that two things are essential: one, good blood supply, the other, the presence of decomposition cells. These cells may be chemotactic; more probably they act as a framework or scaffolding along which nerve fibers develop. They then would play a rôle similar to the cells of the sheath of Schwann in peripheral nerve regeneration.

Marinesco and Minea[4] found that in experimental and pathologic conditions, regenerated fibers pass into the cicatrix from both the upper and the lower end of the cord. The new fibers end in cones and swellings, and these, they think, are derived from a dissociation of preexisting cylinders. The vessels are surrounded by a plexus of nerve fibers. These workers consider as all important the presence of *cellules atrophiques,* which have both chemotactic and nutritive influences on the new fibers.

Fickler[5] studied two examples of cord compression in which there was marked improvemet in the cord symptoms for some time before death. At the level of the compressed area there were no fibers in the cord. Above this level, however, were many newly formed fibers which passed into the anterior fissure of the cord and into the pia, and passing downward again, merged into the cord below the compressed area, thus connecting the pyramidal tracts above with the ganglion cells of the cord below. In the second example, newly formed sensory fibers passed upward by the compressed area of the cord in the posterior septum. Fickler concludes that fibers are capable of regeneration and that complete restoration of function is possible.

Thus the general view now is that blood vessels and a certain group of cells are especially important in regenerative efforts of central nerve fibers. Whether these cells, which have been called by various names, have a chemotactic or nutritive function, or act as a scaffolding, is still a matter of speculation. At any rate, attempts at regeneration are frequent and extensive, and in favorable instances, restoration really may be possible.

THE EFFECTS OF WEATHER ON PAIN, COMFORT AND EFFICIENCY

It is not at all uncommon to hear that a patient feels well or ill parallel to changes of the weather. There is no doubt that barometric and above all hygrometric changes produce distinct and often marked variations in sensation. Probably no information, however, is more fallacious than the vague general impressions with regard to these effects of the weather that are supposed to be common knowledge. For instance, it is a shock to most persons to learn that though dark, rainy days are supposed to produce depression, and bright, sunny weather to lift clouds of despondency, suicides are most frequent in June and least frequent in December. Cold weather is supposed to be a great source of suffering and consequent depression, especially to the working classes, and yet the cold winter months have fewest suicides and the warm summer weather the most. It is not the extremes of heat, however, which produce the despondency and ill feeling that lead up to suicide, for the climax of the curve of suicides is not reached in July or in August, when people have become run down from the persistence of hot weather, but in the pleasant month of June.

Evidently careful study is needed in order to determine the exact effect of weather on the disposition and the feelings. A careful analysis of suicide statistics was made by Dexter,[1] who analyzed 2,000 cases of suicide in one American city. When studied in connection with the weather tables, the fact was revealed that "the clear dry days exhibit the greatest number of suicides, and the wet, partly cloudy days the least;

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[2] Rossi: Processus régénératifs et dégénératifs consecutifs à des blessures aseptiques du systéme nerveux central, Arch. ital. de biol., 1909, li, 413.

[3] Bielschowsky: Ueber Regenerationserscheinungen und centralen Nervenfasern, Jour. f. Physiol. u. Neurol., 1909, xiv, 131.

[4] Marinesco and Minea: Recherches sur la régénérescence de la moelle, Nouvelle Iconographie de la Salpêtrière, 1906, xix, 417.

[5] Fickler: Recherches expérimentelles sur l'anatomie de la dégénération traumatique et la régénération de la moelle épinère, Deutsch. Ztschr. f. Nervenheilk. 1905. xxix, 1.

[1] Dexter, Edwin: Suicide and the Weather, Pop. Sc. Month., April, 1901.

and with differences too great to be attributed to accident or chance. In fact, there are 31 per cent. more suicides on dry than on wet days, and 21 per cent. more on clear days than on days that are partly cloudy."

Dr. Ellsworth Huntington,[2] of the Department of Geography of Yale University, has called attention to the fact that there are some rather surprising results to be obtained from a study of efficiency in factories and in schools and colleges at different seasons of the year. The studies were made over a period of four years, and the plotted curves show that the lowest wages are earned during January; then there is a rather steady increase through February, March, April, May and the first half of June. During the latter part of June and through July and August, the curve remains at a lower level than in early June, but much higher than during the winter. About the end of August, people begin once more to work fast, and they go on at an increasing rate until the middle of November, when the rate begins to fall again. It recovers somewhat in December, owing evidently in part to the rush of holiday orders and in part to the extra incentive of the special need for money because of Christmas expenditures. Finally, at the end of that month, efficiency drops off rapidly to remain at its lowest all during January.

The chief differences between the curves for highest physical work and the maximum of mental effort, as illustrated by the class records of West Point and Annapolis, is that the fall maximum at West Point comes later than that of operatives and children, while the spring maximum comes earlier. At Annapolis the two maxima are pushed still closer together. "The two West Point maxima come more nearly in the winter than do the factory maxima, while the maxima at Annapolis are pushed still farther into the winter because the climate there is warmer than in Southern New York and Connecticut." The curves show that at very low temperatures, both mental and physical work are depressing. On days with higher temperatures, activity of both kinds increases, the increase being slight at first. Mental work reaches its highest point at a temperature of 38 F., while physical work reaches a maximum at 59 for men and 60 for girls. Above these temperatures for mental and physical work, the curves begin to fall.

There is a general impression that cold weather stimulates the circulation in human beings and arouses the activity of the nervous system, thus giving a greater capacity for work. This is true to a certain extent, but not for cold weather below the freezing point, in spite of persuasions to the contrary. The fall and the spring are the best working periods of the year for all kinds of work. A study of storms and their stimulating effect shows that change, especially rather sudden change of thermometric and barometric phenomena, are distinct stimulants. On the other hand, when the temperature remains more or less constant from day to day, people work and think more slowly.

As Dr. Huntington says, "We say bad things about our storms, we are loud in our defamation of the changeableness of the weather in the Eastern United States. In spite of this constant deprecation, every time that a storm passes over a region and is followed by cooler weather, peoples' efficiency is increased." We are inclined to think of an unvarying temperature as good for health and strength, but apparently it is not. Weather variations are distinctly good for us and for our efficiency.

Current Comment

THE BLOOD-SERUM IN ALKAPTONURIA

Alkaptonuria is the symptom of a perversion of metabolism whereby some of the aromatic fragments of the protein molecule, notably tyrosin and phenylalanin, are no longer converted into the usual end products of amino-acid disintegrative change in the organism. The tendency of the urine to become very dark when in contact with the air is due to the presence of homogentisic acid, a compound bearing a very close structural relation to the two amino-acids mentioned above. The rare anomaly of nutrition attended by the continued excretion of homogentisic acid raised the question as to its unique origin and real significance. At one time it was believed that the aromatic compound represented a product of intestinal putrefactive change and that it had its origin in the alimentary canal. To-day, however, this explanation of the genesis of homogentisic acid has been abandoned in favor of the well-established theory that it represents an actual abnormality in the intermediary metabolism of protein. The facts are that the administration of tyrosin or phenylalanin, or of proteins (which yield these amino-acids) causes a marked increase in the output of homogentisic acid in the urine of alkaptonuric persons. Even on a protein-free dietary the characteristic excretion may continue, though in diminished amounts, the tissue proteins evidently being the sources of the urinary substance. Normal persons, on the other hand, readily and completely destroy these amino-acids and the homogentisic acid. If we may look on the homogentisic acid in persons presenting these unusual conditions as the product of the incomplete destruction of some of the amino-acid structural units of the proteins, the question at once suggests itself whether or not homogentisic acid ordinarily arises in normal intermediary metabolism. If it does, then the essential difference between the normal and abnormal (or alkaptonuric) individual would be that the latter is unable to complete the metabolic destruction of certain aromatic amino-acids which the normal organism readily breaks down to the simplest final stages. The relation of the alkaptonuric to homogentisic acid or its precursors would thus present an analogy to the behavior of the diabetic toward sugar. Whether or not homogentisic acid really is an intermediary product in the normal metabolism of proteins and escapes detection because it is further decomposed as promptly as it arises cannot be definitely stated at present. There is some evidence that transitory alkaptonuria can be induced by excessive feeding of tyrosin.[1] If the hypothesis is tentatively adopted that homogentisic acid represents a normal stage in the metabolic disintegration, we at once become curious as to the place where it is normally broken down. Older experiments have shown that it can be made to disappear in its transit through the liver.[2] This by no means excludes the participation of other organs and of the blood itself. With respect to the latter fluid Oscar Gross of the medical clinic at Greifswald has furnished an interesting contribution.[3] Homogentisic acid is readily destroyed outside of the body by the blood-serum of normal persons. The serum of alkaptonurics, on the other hand, has no action whatever on it. Perhaps the key to the situation here and the explanation of the anomaly of alkaptonuria lies in the lack of an enzyme which ordinarily is present and competent to complete the metabolism of the intermediate product excreted in this unusual disease.

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[2] Huntington, Ellsworth: Work and Weather, Harper's Month. Mag., January, 1915.

THE EMOTIONS AND ALIMENTATION

To experimental physiologists it is now a familiar fact that the peristaltic movements of the alimentary tract are easily inhibited by a variety of influences that may come into play in the every-day life of the human subject as well as the laboratory animal on which they have primarily been noted. The effect of the emotions on gastric peristalsis is not a new observation. Cannon, who has used the Roentgen ray, the most fruitful of all the technics applied in this field of study, long ago showed that rage, fright and anxiety abolish movements of the stomach. Other sensory stimuli bring about similar inhibitions of gastric peristalsis which can actually be observed in certain animals (rabbits) without any operative interference whatever, by mere inspection of the epigastrium as described by Auer.[4] The stoppage of intestinal peristalsis after similar inhibitory influences are brought to bear has been described for the human subject by various observers who used the Roentgen-ray method. If further evidence were needed to give emphasis to the profound dependence of the activity of the stomach, as regards both its secretory and motor functions, on the "condition" of the nervous system, additional proofs could easily be adduced. Quite recently a large number of facts have been gathered in the pharmacologic institute at Utrecht directly applicable to the question at issue.[5] They involve a careful record of the rate of discharge of bismuth meals from the stomachs of laboratory animals in various stages of psychic calmness or perturbation, but under otherwise comparable conditions. Without attempting to group the emotional states into well-defined categories, we may describe the subjects as ranging from individuals tame, unperturbed, readily amenable to handling and freely submissive to observation, on the one hand, to wild or frightened or refractory subjects at the other extreme. Corresponding with these emotional states the discharge of the meal from the stomach ranged in time from one and a half hours in the former group to three or even more hours in the case of the most unamenable subjects. Such figures are more expressive than a dozen sermons of the importance of a proper state of the nervous system in the normal performance of some of the functions of alimentation.

THE CULTIVATION OF TRYPANOSOMES

The development of suitable methods for the study of the growth of animal tissues outside of the body has encouraged much successful research in respect to the proliferation of various types of both normal and pathologic cells. It has made possible observations on developmental changes of such material as embryonic and tumor tissues and has pointed the way to the investigation of inhibitory as well as excitatory agencies. Fragments of neoplasms have been cultivated in glass apart from the organism which originally harbored them; and the mechanisms of their growth are thus being more clearly elucidated. By an adaptation of the devices used in this field, Dr. R. Erdmann[6] at Yale University has succeeded in following the development of certain important protozoa in a new way. Trypanosomes have, of course, been cultivated in the laboratory test tube in a variety of ways; but a satisfactory medium for culture on a slide has hitherto not been described. The value of such a scheme lies in the accuracy with which it enables the observer to study the sequence of changes in these microscopic organisms so as to reveal their true life history. By employing the plasma of the host as a culture medium either for the trypanosomes themselves or the growth in vitro of various infected tissues of the host, Dr. Erdmann has succeeded in keeping *Trypanosoma brucei* in normal condition for an indefinite period, whereas they die in a few days in other culture mediums. With the application of aseptic technic, the trypanosomes can be kept living, growing and dividing as they do in the host itself or in the transmitter. This promising method of investigating the complicated life cycles of protozoan forms which are parasitic alike in blood and in cells cannot fail to be an important contribution to the equipment for approaching the problems which they present.

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[1] Experimental Alkaptonuria, editorial, The Journal A. M. A., May 25, 1912, p. 1606.

[2] Embden, Salomon and Schmidt: Beitr. z. chem. Phys. u. Path., 1906, viii, 152.

[3] Gross, O.: Ueber den Einfluss des Blutserums des Normalen und des Alkaptonurikers auf Homogentisinsaure, Biochem. Ztschr., 1914, lxi, 165.

[4] Auer, J.: Gastric Peristalsis in Rabbits under Normal and Some Experimental Conditions, Am. Jour. Physiol., 1907, xviii, 347; The Effect of Severing the Vagi or the Splanchnics or Both upon Gastric Motility, ibid., 1909-1910, xxv, 334.

[5] Takahashi, M.: Die Abhängigkeit der Magenentleerung vom Allgemeinzustand des Nervensystems, Arch. f. d. ges. Physiol., 1914, clix, 389.

[6] Erdmann, R.: A New Culture Medium for Protozoa, Proc. Soc. Exper. Biol. and Med., 1914, xii, 57.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Tuberculosis Recommendations.—The board of trustees of the Arkansas Tuberculosis Sanatorium, Booneville, have recommended to the legislature, an appropriation of $100,000 for the next biennium. Of this sum $85,000 is desired for maintenance and $10,000 for the much-needed cold storage and power plant.——The board also recommends an appropriation of $50,000 by the legislature for the erection and maintenance of a sanatorium for negroes to be established near the center of negro population, either south or east of Little Rock. Of the desired appropriation, $30,000 is for the erection of the buildings and $20,000 for maintenance during the next two years.

CALIFORNIA

Medical Library Association Organized.—On February 4, physicians of San Diego met and organized the Medical Library Association. The following officers were elected: president, Dr. Fred. R. Burnham; vice-president, Dr. Harry C. Loos; secretary, Dr. Robert Pollock, and treasurer, Dr. Alfred D. Long.

Personal.—Dr. George E. Ebright, San Francisco, has been appointed president of the State Board of Health to succeed Dr. Martin Regensburger, term expired.——Dr. Benjamin F. Walker, Stockton, has returned after four months' service as surgeon in French field hospitals.——A banquet was given February 1, by the employees of the Health Department of Los Angeles in honor of the twentieth anniversary of the appointment of Dr. Luther M. Powers as health officer. Sixty employees of the department were present and a silver loving cup was given Dr. Powers by his fellow workers.——Dr. Harriett G. Probasco, Los Angeles, has been appointed physician at the Juvenile Hall.

ILLINOIS

Associate Staff Attendants Eliminated.—The efforts of the Chicago Medical Society to do away with the classification among the members of the attending staff of the Cook County Hospital have been successful. On February 19, the public service committee of the Cook County board adopted resolutions eliminating the classification of associate staff attendants.

Personal.—Dr. Henry B. Carriel, for fifteen years superintendent of the Jacksonville State Hospital, has resigned and Dr. Edward L. Hill, Red Bud, has been appointed.——Dr. Herbert H. Pillinger, Algonquin, who has been under treatment in a hospital in Elgin for an infected wound of the hand, has returned and resumed practice.——Dr. William A. Nason is reported to be ill at his home in Algonquin.

Hospital and Dispensary Notes.—The night warden of the Cook County Hospital announces that 100 beds are to be added to the tuberculosis ward at that institution.——Arrangements have been completed for the establishment of a free dispensary in connection with the Washington Street Commission, Springfield. Dr. Theodore J. Knudson, Springfield, is chairman of the special committee of the board.——Stakes for the administration building and eight other buildings of the State Epileptic Colony, Dixon, were set February 13.——The tuberculosis cottage and men's infirmary at the Watertown State Hospital are nearly completed. These two buildings and the nurses' dormitory are expected to be ready for occupancy early in the spring.

Report of the Edward Tuberculosis Sanatorium.—The annual report of Dr. Theodore B. Sachs, Chicago, medical director of the Edward Sanatorium at Naperville, shows that in 1914, 213 patients were admitted and 200 discharged, 186 of whom were classified as to results of the treatment. Of the total number of 186 cases the tuberculous process was arrested or "apparently" arrested in 62.3 per cent., became quiescent in 41.4 per cent., 20 per cent. were improved and 5.9 remained unimproved. During the eight years of the existence of the institution 1,162 patients were admitted and 1,073 discharged (a few were discharged a second time). Of these 103 stayed at the institution less than one month, while 91.4 per cent. of the patients remained an average of 19.2 weeks.

Chicago

Memorial to Head Nurse.—The alumni of St. Luke's Training School have launched the project of erecting a memorial training school and home to be known as the Margaret E. Johnstone Memorial, in memory of Miss Johnstone, for twelve years directress of the school, who died January 26.

Internists Organize.—The Chicago Society of Internal Medicine was recently organized with the following officers: president, Dr. James B. Herrick; vice-president, Dr. Robert B. Preble; secretary-treasurer, Dr. Charles A. Elliott, and executive committee, the president, secretary and Drs. Charles Spencer Williamson, Ernest E. Irons and Walter W. Hamburger.

Personal.—Dr. George G. Davis, who has been associate professor of surgery in the University of Manila, P. I., and assistant surgeon at the Mission Hospital, Canton, China, reached New York from England, February 15.——Dr. James H. Stowell has resigned as chief medical examiner of the North American Life Insurance Company, Chicago, and has been succeeded by Dr. Owen M. Knox.

Course in Surgery of the Natives of the Far and Farthest East.—A course of six lectures, illustrated, on so-called tropical surgery and borderline diseases, will be given at Rush Medical College during the spring quarter on Saturday afternoons at 3 o'clock, from April 3 to May 8, inclusive, by Dr. John R. McDill, Milwaukee, Wis., formerly professor of surgery, University of the Philippines, Manila. The lectures are free to the medical profession.

INDIANA

Good Work of School Nurses.—The work of three school nurses employed by the Indianapolis Board of Health, has given such good results that two more will be added. Since January 1 they have visited the homes of 1,279 children who have been excluded from school for various reasons.

Legislature Notes.—A bill compelling the attendance of the prosecutor at all insanity proceedings where the defendant has no representative, has been passed in the house of representatives. It is designed to prevent the railroading of people to the insane asylum.——The house of representatives has finally defeated the bill to establish a state board of chiropractic examiners. During the hard fight on this bill it was shown that during the last ten years only ten osteopathic physicians have been licensed in Indiana.

Open-Air Schools.—Reports on the open-air school for tuberculous children in Indianapolis have been so encouraging that the municipal school board has adopted a resolution that whenever the parents of forty children in two consecutive grades in any school district signify their wishes to have an open-air school started, the school board will provide the same.

KANSAS

Small-Pox Still Prevalent.—In Columbus over 100 cases of small-pox had been reported up to January 13. The mildness of the majority of cases makes the situation difficult to deal with, since many patients are not ill enough to recognize the need for medical treatment.

Districting of State.—A bill introduced in the house by Representative Bardwell provides for the apportionment of the state into thirty districts in proportion to population and assessed valuations, the organization in each district of a board of health and the appointment of a whole-time health officer.

Dispensary Opened.—The Associated Charities of Kansas City, Kan., have opened a free dispensary for the treatment of diseases of the eye, ear and throat, every afternoon from 12 to 2; for general medicine on Tuesday, Thursday and Saturday afternoons, and diseases of children on Monday, Wednesday and Friday afternoons.

Personal.—Dr. Walter S. Sutton, Rosedale, sailed for Europe, February 13, to take service in the hospital established by Mrs. Whitney.——Dr. Gilbert C. McCormick, Wichita, is serving with the American Ambulance in Paris.——Dr. Lucullus R. Sellers, Osawatomie, succeeded Dr. Benjamin F. Hawk, Harper, as superintendent of the Larned State Hospital.

KENTUCKY

State Health Board Officers.—At the January meeting of the State Board of Health held in Louisville, January 15, Dr.

W. Lucien Heizer, Bowling Green, was elected state registrar of vital statistics, and Dr. Lillian H. South, Bowling Green, was reelected state bacteriologist, each for a term of four years.

Measures Against Trachoma.—Provisional arrangements have been made for the treatment of cases of trachoma in Jefferson County (of which nearly one hundred have been found in the schools) in the local hospitals of Lexington.——A conference and course of instruction for the health officials, physicians and midwives of Lexington and Fayette County for the study of methods for the prevention and treatment of trachoma and ophthalmia neonatorum was held at the Phoenix Hotel, Lexington, Dec. 2, 1914.——Cases of trachoma were found in the schools of Versailles in a recent examination by Dr. John McMullen, Baltimore, of the Public Health Service. The children have been kept out of the school and treatment instituted.

Hospital Notes.—The new Bethany Hospital, located in the Combs Building, Winchester, was formally dedicated February 10.——A vigorous campaign is being waged to raise $50,000 for the erection of a hospital in Winchester.——The new Red Cross Sanatorium for Negroes, Louisville, was opened for public inspection, February 12.——The contracts for the children's pavilion to be connected with the Waverly Hill Tuberculosis Sanatorium, have been let. The contracts call for an expenditure of $12,000 and the building will be completed this summer.——Dr. Leon L. Solomon, dean of the staff of the Jewish Hospital, Louisville, has donated a department for clinical research to the institution. Dr. Leon K. Baldauf, Louisville, has been elected director of the new department.

Personal.—Dr. Dalferes P. Curry, St. Charles, has succeeded Dr. E. H. Mark, Bowling Green, as state sanitary engineer, with headquarters at Bowling Green.——Dr. J. F. Reynolds, Mt. Sterling, was thrown from his horse recently and suffered a comminuted fracture of the arm.——Dr. Delia Caldwell, Paducah, who has been seriously ill with pneumonia, is reported to be convalescent.——Dr. Fred. H. Johanboeke, Louisville, has been appointed state medical supervisor of Kentucky of the Royal Arcanum, succeeding Dr. E. R. Montgomery, Louisville, resigned.——Dr. T. M. Owen of the Federal Bureau of Animal Industry, who has had charge of the work for the eradication of foot-and-mouth disease with headquarters in Louisville, has been assigned to Norfolk, Va., where he will take charge of the work for the eradication of cattle-tick, in Virginia and North Carolina. He will be succeeded in Kentucky by Dr. A. J. Payne.——Dr. Jesse I. Whittenberg, Louisville, has been appointed county health officer of Jefferson County.

LOUISIANA

Clinic Building.—A clinic building is to be erected at a cost of $20,000 by the board of directors of the Presbyterian Hospital on a site acquired last year on Girod Street, New Orleans.

Tulane Medical Privileges Given to Women.—The board of administrators of Tulane University, at a recent meeting, adopted the recommendations of the medical faculty and granted all the privileges of the medical college to women students.

Tuberculosis Camp Deeds Delivered.—The deeds for 640 acres of land near Alexandria were delivered to Dr. Oscar Dowling, president of the State Board of Health, January 7. On this site, which is on a high bluff overlooking the Red River, the new State Tuberculosis Sanatorium, for which $10,000 has already been appropriated, will be erected.

Improvements in State Hospital.—Dr. Clarence Pierson, superintendent of the Louisiana Insane Asylum, Jackson, reports that during the year, $254,000 was spent in maintenance, new buildings and equipment. Five new buildings are in course of construction. During the year, 310 patients were admitted and the institution was administered at a cost per capita of 43 cents per day.

New District Society.—The Fifth District Medical Society was organized in Monroe, January 20, by Dr. Oswald W. Cosby, Monroe, and the following officers were elected: president, Dr. George W. Gaines, Tallulah; vice-presidents, Drs. Vern J. Funderburk, Monroe; Dix H. Alverson, Newellton, and William S. Rutledge, Ruston; and secretary-treasurer, Dr. James B. Vaughan, Collinston.

Personal.—Dr. Grover C. McKinney, Lake Charles, hookworm specialist of the State Board of Health, has been elected full-time physician of Calcasieu Parish.——Fire in Morgan City, January 20, destroyed the office and library of Dr. Charles C. deGravelles.——Dr. Sidney D. Porter, New Orleans, has been appointed secretary of the State Board of Health.——Dr. J. George Dempsey, New Orleans, has been elected president; Dr. George S. Brown, vice-president; Dr. G. Farrar Patton, secretary, and Dr. Everard W. Mahler, treasurer, all of New Orleans, of the Louisiana Antituberculosis League.

MARYLAND

Personal.—Dr. Karl Van Norden, formerly in the research department of Johns Hopkins Hospital and who has been an officer in the German army since the beginning of the war, was seriously wounded at the battle of Lodz but according to word just received has fully recovered and will return to the front at once.——Dr. Henry Deibel, Baltimore, was rendered unconscious in an automobile accident recently. His car was jolted from its course by running over a dog and crashed into a tree, throwing the doctor to the roadway. He is suffering severely from shock and bruises.——Dr. Arthur P. Herring, secretary of the state lunacy commission, has returned from South Carolina where he went at the request of the state authorities to investigate the conditions at the Columbia State Hospital.

Effect of Harrison Act.—The effect of the Harrison Drug Act, which becomes a law, March 1, is already being felt in the office of the supervisors of city charities, Baltimore. Many persons who will be unable to get narcotics from druggists and others, in anticipation of a rigid enforcement of the new law, have appealed to the supervisors for relief. Some pitiful cases have been recorded in the last few days. It is giving the supervisors considerable trouble to determine what to do with these persons, for none of the hospitals will take them. Those in charge at the Phipps Psychiatric Clinic have agreed to cooperate with the supervisors as far as possible. Those who cannot be treated at the clinic, will be sent back to the supervisors and it probably means that a ward at Bay View Asylum will have to be opened for such cases.

MINNESOTA

Hospital Addition Opened.—A four-story addition to the Swedish Hospital, Minneapolis, was formally opened February 9; the new addition will accommodate 52 patients.

Personal.—Dr. Howard Lankester, St. Paul, has recovered from his recent illness.——Dr. Frederick H. Buck, Shakopee, is reported to be seriously ill with scarlet fever.——Dr. R. L. Burns, Soudan, has completed negotiations to take over the Budd Hospital, Two Harbors.

Measles in the Agricultural School.—Under date of February 10, an epidemic of 28 cases of measles was reported among the students of the Agricultural School of the University of Minnesota, at Anthony Park. This epidemic again emphasizes the necessity of an isolation hospital on the university grounds and a special health officer for the university district, both of which have been asked for heretofore. Many of the students live outside the campus in private homes, and as hundreds of them were exposed to the contagion the possibilities of spread of the disease among the pupils of the city schools of Minneapolis and St. Paul are great.

Cost of Small-pox and Vaccination.—The State Board of Health reports that vaccination at public expense costs about 25 cents a person, while small-pox costs the public on an average about $50 per case. On this basis it is estimated that Minnesota's loss in 1913 and 1914 on account of small-pox was $233,000, or $100,000 more than the total health appropriation for the two years. Only about 1 per cent. of persons having small-pox in 1913 and 1914 had been successfully vaccinated within seven years; 6 per cent. had been vaccinated more than seven years previously. The disease in these persons was mild. All deaths and all severe cases occurred among the 93 per cent. of persons afflicted who had never been vaccinated.

NEBRASKA

Personal.—Dr. Marie H. Morse, Wisner, was seriously injured at Fremont, January 28.——Dr. Joseph S. Leisure, formerly of Clay Center, has been appointed a member of the staff of the Hastings State Hospital.——Dr. Tenny T. Harris has been reappointed chief of police surgeons of Omaha.——Dr. Porter F. Dodson, Wilber, was elected president of the board of secretaries of the State Board of Health, January 12.

NEW YORK

State Medical Society Meeting.—The one hundred and ninth annual meeting of the Medical Society of the State of New York will be held in Buffalo, April 27 to 29. The place of meeting will be the Sixty-Fifth Regiment Armory and on the last day of the meeting a regimental parade will be held, with review by Surgeon-General Gorgas, U. S. Army.

Superintendent of Supervisors Appointed.—Dr. Fred M. Meader, Syracuse, former city bacteriologist, has been appointed by State Health Commissioner Herman M. Biggs as superintendent of sanitary supervisors of the state. Dr. Meader will make regular visits to the various sanitary districts and will also be ready to answer emergency calls from any sanitary supervisor at any time.

Advise Closer Watch on Cattle.—The special commission, composed of Seth Low, Calvin J. Huson and Dr. Linsey R. Williams, deputy commissioner of health of the state of New York, appointed to investigate conditions among cattle, has submitted its report to Governor Whitman, in which it urges closer inspection of cattle, a general and frequent investigation of slaughter houses and the pasteurization of skimmed milk. The report holds that as many tuberculous cattle are slaughtered annually and made into sausage, which is liable to be eaten without cooking, farmers should be indemnified for cattle slaughtered by the state.

Ask Investigation of Private Institutions.—The legislative committee appointed two years ago to investigate the proposed taxation of Bloomingdale Insane Asylum in White Plains, has been submitted to the legislature. This report finds that the institution in question is conducted as a business proposition though some needy patients are treated free of charge, and it is on this latter fact that the institution has been free from taxation. The report recommends the appointment of a commission to investigate the feasibility of taxing all such institutions. It is estimated that the value of these institutions in the state is $10,000,000.

Hearing on Vaccination Bill.—February 10 a joint meeting of the House and Senate was held at Albany to hear arguments for and against the Jones-Tallett bill to limit compulsory vaccination of schoolchildren to communities in which epidemics exist. Among those heard were State Health Commissioner Hermann M. Biggs, New York, and Thomas E. Finnegan, deputy commissioner of education. Dr. Biggs is said to favor compulsory vaccination in first- and second-class cities, but not elsewhere. He thoroughly believes in the efficacy of vaccination. Dr. Finnegan said the present law requiring vaccination of all schoolchildren regardless of the presence of epidemics was difficult to enforce, and he favored the Jones-Tallett bill. Among those who spoke in favor of compulsory vaccination were Dr. Abraham Jacobi, New York City; Dr. Jay F. Schamberg, Philadelphia, and Dr. Franklin C. Gram, Buffalo. A number of laymen opposed compulsory vaccination unless it applied to all members of the community, or objected to it altogether.

Report on Feeble-Minded.—The State Commission to Investigate Provision for Mental Deficients, consisting of Robert W. Hebberd, secretary of the State Board of Charities; Dr. Max G. Schlapp, New York City, and others, which has been at work since last August, has submitted its report to the legislature. The findings are embodied in five conclusions with recommendations. These show the large number of defectives in the state, the lack of facilities for caring for them, the inadvisability of trying to deal with this class of individuals under the reformatory system, or in institutions for the insane, and set forth a plan for their care which seems somewhat ambitious. In the opinion of the committee, the problem is one which must be solved by the state, and the sooner such plans as suggested are carried out the more economical it will be for the state. It is especially urged that facilities for vocational training of the mentally defective pupils in the public schools should be greatly improved and extended and that there should be a better system of supervision than at present exists over the mentally deficient pupils.

Urge United States Control of Quarantine.—The Committee on Public Health of the New York Academy of Medicine has sent a letter to Governor Mitchell enclosing the report of its special study on the advantages that would accrue to the public generally and to this state in particular by placing the New York quarantine station under federal instead of state control. The report gives as reasons for urging this change: first, because of the international character of modern commerce the tendency of the last fifty years has been from provincial regulations to uniform national and international rules and laws; second, there are only two ports in the country whose quarantine stations are managed by local and state authorities; third, the United States, in order to be a responsible party to national agreement, must have control of all the ports of the country. The report further points out that as quarantine work is essentially scientific in its nature, it cannot be carried on efficiently unless the tenure of office is independent of changes in administration and politics. As the term of office of the present health officer expires this month, it is suggested that it would be an appropriate time for the government to transfer this work to the federal government. It is also shown that in 1913 and 1914 it cost $96,080 and $91,900, respectively, more to maintain the station than the revenue derived from it.

New York City

Personal.—Dr. Henry H. M. Lyle of St. Luke's Hospital sailed for France, February 10, to assume charge of the American Base Hospital, established and equipped by Mrs. Payne Whitney.

Money Saved by Health Department.—Dr. Sigismund S. Goldwater, health commissioner of New York City, has turned back to the municipal treasury more than $170,000 as the unexpended balance of its appropriation for the year.

Bar Dogs from Food Shops.—The Health Department has put into effect an ordinance forbidding the bringing of dogs into all stores where groceries, meat, fruit and other foods are displayed for sale. Signs directing attention to this ordinance have been displayed in all such shops.

Newspaper Attack on the Milk Commission and Dr. Park.—The New York *Globe* of February 11 contained an article by Alfred McCann, the exponent of the *Globe's* pure food campaign, describing the certified milk industry as conducted by the milk commission of the Medical Society of the County of New York and characterizing Dr. William H. Park as a "farce" and the cows "rotten." On the same evening at the meeting of the pediatric section of the New York Academy of Medicine, the chairman, Dr. Walter Lester Carr, spoke of the work of the milk commission which had been taken as a model after which milk campaigns for pure milk had been patterned in many cities all over the civilized world, and called on Dr. Park to explain the basis of Mr. McCann's amazing statements. Dr. Park stated that the accusations made against the veterinarian who had been making the test were absolutely false. Dr. Park said that as a matter of fact their tests have shown that 9 per cent. of all cows brought to the certified herds are tuberculous, whereas only 3 per cent. of cows in these regularly inspected herds have been found to be infected. Hitherto the tests have been continued over eighteen hours, but as a result of the facts they had gathered in regard to late reactions, such tests would hereafter be continued over twenty-four hours and would be made twice a year. Dr. Park stated that it had never been claimed that the certified milk was absolutely perfect, but they had used every precaution which was possible with the working force and funds at their command. It was also pointed out that with so large a proportion of the city milk supply pasteurized it was important to have a small supply of pure raw milk available. It was the general opinion that not only was the unwarranted attack on the work of the milk commission which has been purely philanthropic, to be deplored, but that the attempt to destroy public confidence in a work which has only the public welfare in view was most reprehensible.

OHIO

Sanatorium Capacity Increased.—The board of trustees of the Springfield Lake Sanatorium, recently opened by Stark, Portage, Columbiana, Mahoning and Summit counties, has added six beds to each of the public wards in the institution, thereby increasing the capacity from 72 to 96. There are at present 53 patients in the institution and 12 applications are on file.

Personal.—Dr. Ralph B. Thompson, National Military Home, was promoted February 20, and transferred to the Eddy Road Hospital, Cleveland.——Lieut. Earl B. Downer, M. C., Ohio N. G., Columbus, has been appointed staff surgeon for the American Red Cross and detailed to work in Servia.——Drs. Angus MacIver, Marysville, and J. Morton Howell, Dayton, have been appointed members of the State Board of Health.

Hospital for Criminal Insane Opened.—The Ohio State Hospital for the Criminal Insane, Lima, erected at a cost of

$2,000,000 was officially opened February 15. The superintendent, Dr. Charles H. Clark, estimates that about 600 patients will be housed in the new institution within the first four months. Dr. Clark is endeavoring to have the appropriation of $88,609.75 for the hospital the next four and one-half months, increased to the original estimate of $106,000.

Cincinnati

Personal.—Dr. Christian R. Holmes was reappointed a member of the board of hospital commission, January 26. Dr. Holmes returned from New York, February 12, after conferring with Eastern scientists regarding the new hospital.——Dr. H. Kennon Dunham has been reelected president of the Cincinnati Antituberculosis League.

Cincinnati General Hospital Opened.—On February 20 the new Cincinnati General Hospital, which took four years to build at a cost of approximately $4,000,000, was formally transferred by the commissioners who supervised its building to the municipal authorities. The formal act of transfer was completed when Dr. Christian R. Holmes, chairman of the commission, gave to the mayor two golden keys with which to unlock the doors of the various buildings. Addresses were made by Dr. Holmes, the mayor, Frederick Spiegel, and Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching. Following the exercises a reception was held. In the evening a dinner was given by the chamber of commerce to the board of hospital commissioners, and this was a personal ovation to Dr. Holmes, who had done so much to make the building of the hospital a great success. Addresses were made by W. B. Melish, toastmaster, Henry S. Pritchett, Thomas C. Powell, Mayor Frederick Spiegel, Dr. Christian R. Holmes, Dr. Samuel J. Mixter of the Massachusetts General Hospital and Dr. Benjamin K. Rachford, resident of the hospital staff. Dr. Rachford paid a tribute to the medical profession of Cincinnati, which has upheld so splendidly the work of Dr. Holmes and his associates. Just before the close of the banquet, an announcement was made that may have a most important influence on the future of medical Cincinnati: Mr. Harry M. Levi stated that he will give $50,000 toward the establishment of a medical school in connection with the new hospital.

PENNSYLVANIA

Personal.—Dr. Lewis N. Reichard, Brownsville, who was operated on recently in Pittsburgh for appendicitis, has returned home.——Dr. Frank B. Witmer, Lebanon, was operated on at the Good Samaritan Hospital recently.——Dr. Thomas B. Hill, Waynesburg, was thrown from his horse, February 10, fracturing his clavicle.

Amendment Proposed to Anticigarette Law.—The act of 1913 provides a fine of not less than $100 and not more than $300. The amendment reduces the fine to not less than $5 and not more than $25, but the force of the new bill is that it will enable the crusaders to bring quick action against violators since it authorizes prosecution before any alderman, magistrate or justice of the peace. The Children's Aid Society, the Society for the Protection of Children from Cruelty, the Court Aid Society, and the officials and probation officers of the juvenile court are very much interested in the bill.

Osteopathic Standing Attacked.—The attorney general has received petitions to revoke the licenses of 161 osteopathic physicians practicing in various parts of the state and including that of O. J. Snyder, president of the State Board of Osteopathic Examiners. The reason given in the petition is "that the physicians are graduates of and hold diplomas from and degrees conferred by the Philadelphia College or Infirmary of Osteopathy, which institution, the petitioners aver, has never had the right to conduct such a college or to grant diplomas and confer degrees, and that therefore these physicians were never legally licensed, as applicants for license are required by the law to have a diploma from a legally incorporated college before they can be licensed to practice in this state." The petition relating to Snyder is based on the ground that the Northern Institute of Osteopathy of Minneapolis, from which he is alleged to have graduated in 1909, and "which it is also alleged has long since ceased to exist," was not a legally incorporated college within the meaning of the law.

Philadelphia

Med-Chi Alumni Meet.—At the annual meeting of the Medico-Chirurgical Alumni Association, the following officers were elected: president, Dr. Arthur C. Morgan; vice-presidents, Drs. Daniel J. Monihan, Chester; Frederick E. Ward, Easton, and Frank Sheppard; secretary, Dr. Erwin H. Erney, and treasurer, Dr. John A. Brophy.

Higher Entrance Requirements.—For the 1915-1916 term the Woman's Medical College of Pennsylvania, Philadelphia, asks the following requirements for admission: Candidates must have successfully completed work equivalent to that prescribed for the freshman and sophomore classes in recognized colleges. This must include collegiate courses in physics, general biology or zoology and chemistry (qualitative analysis is required; organic chemistry is recommended), together with appropriate laboratory exercises in each of these subjects, and two languages other than English (one of which must be French or German).

Medical Institutions About Philadelphia.—Mercy Hospital will shortly move to its new site on Twenty-Second Street below Reed. This hospital conducted for negroes by members of that race has been located on Fitzwater Street for the last eight years. A hospital building at 1413 and 1417 South Twenty-Second Street and a school for nurses is to include four stories, stone, brick and terra cotta, 32x110 feet, and to cost about $50,000, is provided in the architect plans. The new hospital will be a feeder for a convalescent sanatorium to be located just outside of the northwestern city limits.——The National Stomach Hospital, Fifteenth Street above Jefferson, an institution for the investigation and treatment of digestive disorders, was opened formally, February 9. The funds for the building of the hospital were subscribed by those interested in that branch of medicine.

SOUTH CAROLINA

Typhoid Prophylaxis.—The laboratory department of the State Board of Health, under the supervision of Dr. F. Asbury Coward, Columbia, prepared more than 40,000 doses of antityphoid serum during the past year, of which more than 39,000 were sent to physicians.

Personal.—Dr. James L. Napier, Blenheim, celebrated his seventieth birthday anniversary recently with an elaborate dinner to his professional confrères and friends.——Dr. Julius H. Taylor, Columbia, announces that henceforth he will devote his entire time to general surgery.

Hospital Notes.—The secretary of state has issued a commission to the Lee County Hospital Association at Bishopville, with a capital stock of $2,000.——The tuberculosis ward at the State Park Colony has been completed, and the administration building branch is almost ready for occupancy.

New Head of Government Pellagra Hospital.—P. A. Surgeon R. A. Herring, U. S. Public Health Service, who has been in charge of the government hospital for pellagra in Spartanburg since the opening of the hospital a year ago, has been transferred to New Orleans. P. A. Surgeon Randolph M. Grimm of the service has succeeded him. Dr. Grimm formerly spent considerable time in the study of pellagra in South Carolina, and was stationed for a time at Savannah, Ga.

Reorganization Approved.—As the result of the special investigation made by Dr. Arthur P. Herring, Baltimore, secretary of the State Lunacy Commission, dealing with the State Hospital for the Insane, Columbia, the following improvements in the institution are recommended: first, that the superintendent shall be appointed by the Board of Regents and not by the governor, and shall be removed only for cause and after hearing; second, that the Board of Regents shall consist of five members appointed by the governor with the sanction of the senate, shall be appointed for an ultimate term of six years and that they shall not be removed without cause and after hearing; third, that the superintendent shall make all appointments with the sanction of the Board of Regents and shall have power of administration subject to the approval of the board; fourth, that all regulations of the hospital shall be formulated by the board and executed by the superintendent and his assistants; fifth, that the name of the institution be changed from "State Hospital for the Insane" to "Columbia State Hospital"; and that the hospital for negroes shall be known as the "State Park Colony"; sixth, providing for voluntary dismissal; seventh, providing for a fiscal agent whose duty will be to see that patients who have relatives responsible for their support be made to reimburse the state; eighth, that no female patient be admitted to the hospital unless accompanied by a relative, a friend or nurse of the same sex; ninth, providing for a system of after-care of patients who are able to leave the institution although not fully recovered; and tenth, providing for the admittance, care and treatment of inebriates.——At a special meeting of the Medical Society of South Carolina, February 8, resolutions were adopted endorsing the efforts of Governor Manning toward improving conditions at the State Hospital and approving the proposed plans for reorganization.

SOUTH DAKOTA

Court Upholds Health Officer.—In a mandamus proceeding brought by a citizen of Sioux Falls against Dr. William F. Keller, city health officer, to compel him to provide accommodations for the treatment of a case of small-pox in a domestic servant other than in the home of the citizen, Judge J. W. Jones in the circuit court upheld the city health officer. It has been customary in Sioux Falls to remove patients with infectious diseases such as small-pox to tents in the summer, but in cold weather they have been treated in the houses in which the disease occurs. The city has no pest house or detention hospital.

WEST VIRGINIA

Personal.—Dr. Abraham S. Warder, Jr., Grafton, who has been confined to his home since Christmas as the result of a fall on the ice, is convalescent and has resumed practice.

Hospital Assured.—A ten-day campaign to raise $250,000 for the institution in behalf of the Ohio Valley General Hospital, Wheeling, has resulted in securing $254,493.31. The entire cost to the association of the subscription was little more than 2 per cent. The present debt of the association, including interest, is about $285,000, and it has an endowment fund of about $80,000.

WISCONSIN

Sanatorium Site Approved.—The Wisconsin State Board of Control has formally sanctioned the purchase of the Jeffrey Farm in Summer Township, as the site for the Kenosha County Tuberculosis Sanatorium.

Personal.—Dr. Edward J. Barrett, Sheboygan, has been elected a member of the executive committee of the Sheboygan Tuberculosis Society.——Health Commissioner George C. Ruhland, Milwaukee, who has been ill for several days, has recovered and resumed work.

Monthly Bulletin to be Issued.—A bulletin is to be issued monthly by the Milwaukee Health Department in place of the *Healthologist,* the publication of which has been discontinued. Much of the space of the bulletin is to be devoted to the explanation of new health measures, advice and to a crusade against quackery and nostrums. The official title of the publication will be *"Bulletin of the Health Department."*

CANADA

Meningitis Epidemic.—Cerebrospinal meningitis has broken out among the Second Canadian Overseas Contingent, located in Toronto. Six cases and one death have been reported.

Isolation Hospitals Planned.—The Windsor Board of Health has asked the city council to appropriate funds for the erection of three isolation hospitals, one in each ward of the city.

Barker the Guest of Honor.—At the thirty-third annual dinner of the faculty of medicine of McGill University held in Montreal, February 13, Dr. Lewellys Franklin Barker of Baltimore was the guest of honor.

University News.—In the officers' training corps of the University of Toronto, 1,800 men are enrolled. The medical faculty supplied 450; science, 500, and dentistry, 160.——The University of Alberta has been admitted to affiliation with the University of Oxford, England. A student who has completed his course in the former may study in the latter without further examination.

Personal.—Medical Health Officer Theophilus V. Hutchinson, London, Ont., has resigned and it is proposed to give him an honorarium equalling his salary for three years.——Dr. James Stowers, Montreal, has accepted a position with the American Red Cross unit at Paignton, England.——Dr. Keith Dean, Carlyle, Sask., sailed for England, February 7, for work with the expeditionary force.——Dr. James Roberts, medical health officer of Hamilton, has been ordered to report for duty with the stationary hospital number 2, Canadian expeditionary force.——Dr. W. D. Cowan has been elected president of St. John's Ambulance Association, Regina, Sask.——Dr. Henry R. Parent has been elected chairman of the Board of Health of Ottawa.——Dr. T. M. Flock has been appointed superintendent of the Tuberculosis Hospital, Essex County, Ont.——Dr. H. Eaglesham, Weyburn, Sask., has been elected president of the College of Physicians and Surgeons of that province.——Dr. Gordon Gray has been appointed senior demonstrator in physiology in the University of Alberta, and Dr. L. C. Coon, demonstrator in anatomy.——Dr. George H. Wilson, London, Ont., has been appointed medical officer of the Seventh Regiment Canadian mounted rifles.——Dr. George C. Hale, London, Ont., has been commissioned medical officer of the Eighteenth Battalion for overseas service, and Dr. A. V. Becher, London, medical officer Thirty-Third Battalion.

GENERAL

Harvard Graduate Surgeon-General of China.—Dr. S. H. Chuan, a graduate of Harvard Medical School, 1899, and a specialist on sanitary and preventive medicine, has been appointed surgeon-general of the Chinese army, and president of the Army Medical School, Tien-tsin.

Sociologic Congress.—The fourth session of the Southern Sociological Congress will be held in Houston, Texas, May 11. The general theme of the program will be the conservation of health and will be divided into the following six departments: (1) the prevention of communicable diseases; (2) moral health; (3) the health of children; (4) mental health; (5) health and race relations, and (6) the church as the conserver of social health.

Medical College Association Election.—At the twenty-fifth annual meeting of the Association of American Medical Colleges held in Chicago, February 17, Chicago was selected as the place of meeting for 1916, and the following officers were elected: president, Dr. Charles R. Bardeen, Madison, Wis.; vice-president, Dr. Reuben Peterson, Ann Arbor, Mich.; secretary-treasurer, Dr. Fred C. Zapffe, Chicago, and councilors, Drs. F. C. Waite, Cleveland, and Samuel W. Lambert, New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York City, $7,500 for the endowment of a bed in memory of his wife and two daughters, by the will of James C. Fargo.

Franklin Square Hospital, Boston; Free Hospital for Children, Brooklyn; Industrial School for Crippled and Deformed Children, Boston; and Boston Children's Hospital, equal parts of the estate of George N. Dana, after the death of the widow and certain legatees.

Boston Floating Hospital; Industrial Home for Crippled and Deformed Children, Boston; bequests by the will of Ellen Baird, Boston, after payment of certain specified bequests.

Methodist Episcopal Hospital, Indianapolis, the residue of estate appraised at $100,000 by the will of John Messick, Shelbyville, Ind.

National Health Week.—Booker T. Washington, president of the National Negro Business League, has issued from the Tuskegee Institute a call to the people of his race throughout the country to observe a national health week from March 21 to 27. It is further suggested that each community have a clean-up committee to investigate conditions which menace the health of communities. The call is addressed to daily and weekly newspapers, medical and other organizations and to state health officers. He calls attention to the fact that there are 450,000 negroes in the South alone who are seriously ill all the time, the annual cost of whose illness is at least $75,000,000. He says that 112,000 negro workers in the South are ill all the time and their annual loss in earnings amounts to $45,000,000, and that 225,000 die annually, 100,000 of which deaths could be prevented.

National Committee for Mental Hygiene Meets.—At the seventh annual meeting of this organization, held February 15, it was announced that Mrs. William K. Vanderbilt had contributed $44,500 and Mrs. Elizabeth Milbank Anderson $40,000, to be used in the extension of the work of the National Committee of Mental Hygiene. It was also announced that the services of Dr. Thomas W. Salmon, New York, had been contributed for a number of years by the Rockefeller Foundation. The organization proposes to extend its work by organizing state societies for mental hygiene throughout the country. Already seven states have such organizations and in twenty more groups of persons are preparing to establish them. As a part of the campaign of education a quarterly magazine containing articles on mental hygiene, the prevention of insanity and the care and treatment of the insane, the feeble minded and alcohol and drug victims will be published. The following officers were elected for the ensuing year: president, Dr. Lewellys F. Barker, Baltimore; vice-presidents, Dr. Charles W. Eliot, Boston, and Dr. William H. Welch, Baltimore; treasurer, Otto T. Bannard; medical director, Dr. Thomas W. Salmon, New York, and secretary, Clifford W. Beers.

FOREIGN

Suspension of Italian Periodical.—The *Gazzetta Medica Italiana*, founded and edited by Prof. Senator Carlo Forlanini, has ceased publication.

Memorial to Miraglia.—A memorial tablet has been placed on the house at Cosenza, Italy, where the eminent alienist, B. Miraglia, was born, and a similar tablet is to be placed in the insane asylum at Aversa, the scene of his work, and a street in Aversa is to be named after him.

Italy Places More Restrictions on the Liquor Trade.—Last month the new regulations went into force in Italy prohibiting the sale of liquor, even wine or beer (except at meals), to minors under 16, to drunken persons, to feeble persons and to those with mental derangement. The sale of liquor is also strictly prohibited on holidays and election days. Stringent regulations in regard to licensing of saloons also come into force, and the sale, manufacture or importation of absinthe is absolutely forbidden.

Deaths in Profession Abroad.—L. Loewe, a specialist at Berlin in diseases of the ear, nose and throat, and author of several large works on these subjects, aged 71.——M. Höfler, a leading balneologist and student of medical history, especially folklore and medical nomenclature, recently succumbed at Tölz in Bavaria to cancer of the liver, aged 66.——H. Schiess-Gemuseus, long professor of ophthalmology at the University of Basel, where he organized the first eye clinic and wrote many articles on the eye for various scientific periodicals, died recently, aged 82. He retired from his chair at the age of 60, and ten years later lost the sight of one eye from detachment of the retina, soon followed by total blindness from a cataract of the other eye.——L. Pastro of Venice, senator of the realm, died January 22, at an advanced age.——A. Marcacci, professor of physiology at the University of Pavia, author of numerous works on physiology.——The names and addresses of eight physicians who lost their lives in the recent earthquake in Italy, are given in the latest *Policlinico.*

WAR NOTES

Personal.—Dr. Charles S. Pancoast, Camden, N. J., is now connected with the American Red Cross Hospital unit at Budapest, Hungary.——Dr. McDonald, chief surgeon of the American Red Cross Hospital at Budapest, with Surgeons Jewitt and Miller and one nurse connected with the staff, has had conferred on him by the Archduke Francis of Austria the Red Cross badge of honor, second class.

Auto Ambulance Service.—The American Ambulance Hospital, in Paris, has now nearly ninety ambulances in service, most of them at the front. The statistics show that the mortality in the American Hospital has been less than 8 per cent, and that up to January 31, the hospital had received $440,000, of which $120,000 was contributed by Americans in Europe. There are at present 398 patients in the hospital, and the average cost per patient per day is $1.50. The cost of the maintenance of an ambulance is about $200 a month.

Transfer of Wounded in France.—Twenty-seven ambulance trains are in operation in the north of France, but the evacuation of the wounded is much hampered on account of the troop and ammunition trains which are given the right of way. It is reported that 36,000 wounded have passed through Limoges, and that in one night 800 wounded arrived and that there were only three ambulances to handle them, and that the blanket supply was exhausted. At Havre, 4,000 wounded were expected, and 8,000 arrived, in addition to many German prisoners.

More Nurses for War Work.—Ten additional Red Cross nurses sailed for France on the *Rochambeau,* February 20. Of these, nine are to be sent to Yvetot, and one, the head nurse of the department of surgery of the Rockefeller Institution for Medical Research, goes to Paris to assist Dr. Alexis Carrel, who has been detached from the Lyons Hospital and has been assigned to the hospital at Compiegne near the northern battle line. This hospital will accommodate about 100 patients, and is being equipped by the Rockefeller Institute with complete apparatus for research in bacteriologic, pathologic and chemical and surgical conditions which may arise, with especial reference to the study of infected wounds.

Good Work of the Servian Red Cross Unit.—Dr. Edward W. Ryan, surgeon-director of the American Red Cross unit, located at Belgrade, reports that at the time of the Austrian occupancy of Belgrade he was left in charge of all the hospitals in the city. At one time he and his assistants had 3,000 patients in their care with frozen hands and feet. A large number of these wounded had had not even first dressings and many of the wounds were infected. Under Dr. Ryan's charge were five hospitals with about forty buildings, nine Servian physicians, 150 nurses and about 1,200 patients and also the insane hospital and civil, surgical and medical hospitals. In addition to this, Dr. Ryan had to provide food for about 6,000 poor. Before the Servians retook Belgrade 6,000 wounded passed through the hands of the Red Cross Hospital, and as it was impossible to handle these cases, they were sent into the interior of Hungary with the exception of about 750, who were retained in Belgrade.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ended Feb. 20, 1915, shows the following contributions:

Dr. Sylvester J. McNamara, Brooklyn, N. Y.	$	5.00
Dr. Junsai Watanabe, Seattle, Wash.		5.00
Anonymous — B., Pittsburgh, Pa.		30.00
The Erie County Medical Society, Erie, Pa.		25.00
Dr. Hugh Cabot, Boston, Mass.		25.00
Dr. Edward Evans, LaCrosse, Wis.		10.00
Dr. Willet J. Herrington, Bad Axe, Mich.		10.00
Otero County Medical Society, La Junta, Colo.		25.00
Vermillion County Medical Society, Danville, Ill.		25.00
Dr. Eva Charlotte Reid, Talmage, San Francisco, Cal.		5.00
Dr. Howard Carter, Webster Groves, Mo.		5.00
Dr. George H. Torney, Brookline, Mass.		5.00
Dr. John B. Murphy, Chicago, Ill.		100.00
Dr. Donald E. McGillivray, Port Angeles, Wash.		5.00
Dr. Charles N. Spratt, Minneapolis, Minn.		100.00
Dr. John M. Thorne, Pittsburgh, Pa.		5.00
Westerly Physicians' Association, Westerly, R. I.		10.00
Dr. J. P. Long, Astoria, Chicago, Ill.		1.00
Dr. Roy Sexton, Streator, Ill.		5.00
Dr. Delos E. Cornwall, St. Maries, Idaho		5.00
Aesculapian Club of Buffalo, Buffalo, N. Y.		25.00
Pocatello Medical Society, Pocatello, Idaho		10.00
Dr. Arthur R. Thomas, West Eaton, N. Y.		5.00
Receipts for week ending Feb. 20		$ 446.00
Previously reported receipts		$3,133.00
Total receipts		$3,579.00
Previously reported disbursements	$3,135.00	
Disbursements week ending Feb. 20, 200 boxes food at $2.20 per box	$ 440.00	
Total disbursements	$3,575.00	3,575.00
Balance	$	4.00

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Building, Pittsburgh, Pa.

LONDON LETTER

London, Feb. 5, 1915.

The War

GIFTS OF CLOTHES FOR THE SOLDIERS

A needlework guild, founded by the queen on the outbreak of the war, has sent to the front an enormous amount of warm clothing in the form of knitted garments. Just before Christmas there was a special collection of knitted woolen socks and belts to the number of 970,000 from all parts of the empire, from every continent, from the United States, and from every country where English is spoken gifts of clothes have been sent. In five months no fewer than 789,562 garments have been received.

BOULOGNE UNDER THE RED CROSS

The French seaport and watering place has undergone an extraordinary transformation. It is now what may be termed a hospital town for the British wounded. All the principal hotels are turned into hospitals or lodge the officials of the British Red Cross Society. At the railway station the goods sheds have been converted into an enormous military hospital. The work has been so well done that dismal uninhabitable buildings have been changed into a series of spotlessly clean, bright wards, well lighted, warm and ventilated. There is even a specially equipped ward for pneumonia cases, and two thoroughly up-to-date operating theaters. The Casino has also been converted into a hospital. The Café restaurant makes a fine ward, containing over ninety beds, and at the "bar" medicines are now dispensed. The finest ward of all is the great Baccarat Hall. The cashier's office is now a sisters' room, and the "American bar" a Roentgen-ray room. Never have the British wounded, or probably any wounded, been so well looked after. The hospitals are as well staffed as they are equipped. Eminent consulting physicians attached to the army visit daily to advise on medical cases of difficulty, and a still greater number of eminent surgeons attend, and no major operation is performed without the approval of one of them. There are also specialists as well as operating surgeons who are celebrated for particular work. The transport is equally good. The Red Cross Society has some nine hundred motor ambulances on the roads of France. They are at every point of the lines of communication and at every base, and are ready at any hour of the day or night. There is also now an adequate number of ambulance trains on the lines of communication, and the latter types embody the newest refinements in hospital-train construction.

GERMAN PRISONERS IN ENGLAND

A Danish gentleman, Mr. A. Goudsmit, has visited four of the German camps for prisoners in England and reports that the treatment of the prisoners is "splendid." The officers in charge do their best to make the lot of the prisoners as tolerable as possible. The food is excellent and arrangements are made for the men to have regular exercise. Mr. Goudsmit is about to return to Germany with the object of procuring the release of every British non-combatant and the exchange of crippled military prisoners. The British government has now completed, for the internment of some two or three hundred German officers, Donington Park, Leicestershire, the property of Mr. Frederick Gretton. They have spent $100,000 in adapting the place for the purpose. The well-wooded park comprises about 400 acres, but only 20 acres immediately adjoining the hall will be used by the prisoners, this space being enclosed by barbed-wire entanglements, 8 feet high, 6 feet wide, and let into the ground to a distance of 3 feet. Additional dormitories built of wood have had to be erected a few yards from the hall, for some of the prisoners and for the guard.

THE MANUFACTURE OF SYNTHETIC DRUGS

Before the war we were almost entirely dependent on Germany for synthetic drugs and the stocks in this country were not sufficient. Consequently, these drugs have become scarce and expensive. Progress, however, has been made in their manufacture. A license to manufacture salvarsan has been obtained by one firm. At the request of the admiralty, the organic chemistry department of the Imperial College of Science and Technology has been conducting experiments since September, under the direction of Prof. J. F. Thorpe. The admiralty asked the Imperial College to prepare for them 30 pounds of phenacetin, 50 pounds of hexamethylenetetramin and 1½ pounds of beta-eucain. The required quantities have now been forwarded to the naval hospitals.

Epidemic of Influenza in London

Since the outbreak of the war the public health has been remarkably good, but the record is now being threatened in the case of London, at any rate, by an epidemic of influenza. This epidemic has taken a more modified form than in recent outbreaks, and the gastric symptoms which were a distinguishing mark of last year's visitation are absent. On the other hand, the present attack is most infectious, and whenever it has seized on an individual it has usually run through the household of which he is a member. Whole offices have gradually succumbed, and as the mildness of the attack lures the sufferer to continue his normal occupation, the disease has a full opportunity of extending. A large number of cases have taken the form of pleuropneumonia, but when the complaint has not developed so gravely the symptoms are chiefly headache and a transient feverish condition, combined with tonsillitis.

Perjury in a Libel Action Against the British Medical Association

In my letter published in The Journal, September 12, last, I reported the second libel action brought against the British Medical Association by a man named Stevens, the proprietor of a quack medicine. He professed to cure consumption, and was exposed in the association's book, "Secret Remedies." In the first action the jury disagreed, and in the second gave a verdict in favor of the association. That such a powerful body as the association should have difficulty in avoiding being mulcted for damages by a notorious quack is remarkable, but the following throws some light on the matter. In my previous letter I said that a physician gave evidence on behalf of Stevens, and stated that he had practiced in West Africa and had heard the name "umckaloabo" (the alleged plant used by Stevens in preparing his remedy). It was a Kafir word, he said, meaning "life everlasting," and was valuable in chest complaints. He professed to be a ship's doctor, and also produced a paper to show that he had some sort of commission from the government of Liberia. It has now been ascertained that this person has no medical qualification. For a time he was connected with a training enterprise in Liberia, and for a short time had a sort of surgery there. He has been arrested on the charge of perjury.

PARIS LETTER

Paris, Feb. 4, 1915.

The War

THE EMPLOYMENT OF SURGEONS AND PHYSICIANS ACCORDING TO THEIR ABILITIES

Among the criticisms which have been addressed to the military health service there is one which bears on what has been called the non-utilization of abilities. Thus well-known military surgeons have been confined to administrative functions, etc. The Societé médicale des hôpitaux de Paris has recently taken up this question, and after a report made by a committee composed of Drs. Gilbert Ballet, Mathieu and Netter, unanimously passed a resolution which has been presented to the minister of war demanding that the military health service take account as far as possible of the personal aptitudes, not only of surgeons, but also of the physicians serving with the army, and that the physicians of the hospitals of Paris and of the other important cities should be so placed in the medical services that it may be possible to utilize their knowledge and experience to the best advantage of the patients. The society hopes also that the sick and wounded may, in future, be able to benefit more largely than in the past by the care of qualified specialists in neurology, psychiatry, ophthalmology, otology and stomatology.

TREATMENT OF WOUNDS OF WAR

I mentioned in a previous letter (The Journal, Sept. 19, 1914, p. 1043) a paper read before the Académie des sciences last August by Dr. Delorme, medical inspector general of the military health service, entitled "Advice to Surgeons." According to Delorme, in the great majority of cases it is unnecessary to operate; even wounds of the abdomen follow a very simple course. In cases of fracture, he believes, it is unnecessary to remove fragments, whether adherent or free; the search for foreign bodies and their extraction is useless.

Dr. Hartmann, professor of clinical surgery at the Faculté de médecine de Paris, has just published in the *Revue Scientifique* an article showing, on the basis of the experience of four months of war, how erroneous this advice is. Delorme, in his advice to surgeons, takes into account only bullet wounds. In the present war, we are confronted very frequently with wounds made by artillery projectiles, fragments of shell or shrapnel (two wounds by artillery projectiles for every one by bullet) and, still oftener, by infectious complications, so that it is quite necessary to remove foreign bodies and fragments of bone and to open and drain the wounds. To preserve limbs, active treatment is necessary; to confine oneself to a policy of abstention, applying merely an aseptic or antiseptic dressing, is to risk the loss if not of the patient's life, at least of his limb. Wounds of the abdomen are far from presenting the benignity attributed to them by certain military physicians. What ought to be understood is the frequency of infections and suppurations. In wounds made by bullets which have struck the parts directly and have not, in their course through the tissues, met anything hard, the course of the case may be simple, and here it is appropriate to refrain from exploration of the wound and the search for foreign bodies. The simplest dressing, provided it be surgically clean, is sufficient for cure. Unfortunately, such cases are in the minority.

A bullet wound which is extremely small, almost closed, at the orifice of entry, may present, if the ball has struck bone, an enormous wound with great laceration of the parts at the orifice of exit, so that the wounded are constantly inclined to talk of explosive or dumdum bullets. This great difference between the wounds of entry and of exit is extremely striking in cases of transfixing wounds of the hand. The ball is rendered "explosive" by the mere encounter with the bones of the wrist. The same thing is true of bullets which have ricochetted and have become deformed. Bullet wounds, then, are far from having uniformly the benignity which has been attributed to them.

As for wounds made by fragments of shell or shrapnel, it is rare that they do not produce suppuration. Even in some cases in which the entrance wounds seemed aseptic, Hartmann has found, after the extraction of the shrapnel, a little collection of pus at its former site. Any one who believes that to-day the use of tincture of iodin and aseptic dressings has abolished suppuration in wounds of war, is greatly deceived. Such wounds, fortunately, generally disinfect themselves quite rapidly. A patient may arrive with a high temperature and a huge sanious wound, sometimes even putrid or covered with gangrenous exudate; yet in a few days the fever falls, the wounds rid themselves of infection, and the course runs rapidly toward cure. This is an observation frequently made in cases of wounds which are chiefly open and involve only the soft parts.

Whatever may be the complexity of the lesions, unless there is gangrene of the limb (which is exceptional), Hartmann has always practiced conservation; he has never amputated. Astonishment has been expressed at the way in which cure occurs of apparently dangerous lesions. This does not mean, however, that all operative intervention should be eschewed. On the contrary, infected wounds should be freely opened up and foreign bodies and movable fragments of bone removed. In no cases have complications, outside of some secondary hemorrhages, been observed to follow such operations.

As for dressings, aside from the rare cases of uninfected bullet wounds, for which a drop of tincture of iodin and an aseptic dressing are sufficient, Hartmann has always sought to open up the wounds freely and has irrigated them with hydrogen peroxid or phenol solution, even bathing the part with the antiseptic or, when the region is not suitable for such treatment, using an antiseptic spray with the Lucas-Championnière atomizer. In cases of ill-smelling, sanious or gangrenous wounds, compresses wet with a dilution of Javelle water constitute a simple and inexpensive dressing which seems to Hartmann superior to tincture of iodin.

BERLIN LETTER

Berlin, Jan. 26, 1915.

The War

FOOD SUPPLY

The possibility of the cutting off of our supply of foodstuffs has been the occasion for our limiting the employment of what is left of our food supply. It has been shown by noted physicians like Rubner, as well as by experts in political economy, that our supplies are sufficient, not only to save us from starvation, but also from any condition of undernutrition. We must take into account, however, the possibility that the next harvest may be less abundant than we suppose, and as there is nothing to indicate how long the war will last, the government has deemed itself compelled to force the population to economy by means of regulations. Naturally, the number of those who are intelligent enough to practice moderation spontaneously is not particularly larger than usual, but after it was determined that the regulation for the economic use of meat and particularly of the breadstuffs were not sufficiently observed either by the dealers or consumers, the government has now published provisions which will exert an extensive compulsion on both parties. After February 1, all the supplies of wheat and rye, as well as of wheat, rye, oat and barley flour (with the exception of very small quantities) are to be confiscated. The distribution of all these supplies to the individual communities is undertaken by an imperial distributing station which will be constituted by representatives of the imperial government and of the communal and some commercial associations. To this imperial distributing station, which is located in Berlin, the communal associations must apply for the necessary supplement of their grain and flour supplies as well as to give up any excess that they may have to the needy communities. The communal societies and the communities charged with the distribution of the flour supply must take care that there is a uniform satisfaction of the need of bread for all classes of the community. The way in which this is to be accomplished is left to their discretion. In the case of necessity, the communities may adopt extensive regulations for the use and sale of flour and bakery goods. They may order that only bread of a single form may be prepared, they may forbid or limit the trade in cakes and the distribution and receipt of bread and flour to definite quantities and limit the places where it may be distributed and the time. In addition, it may, for instance, be prescribed that bread may be furnished only on the presentation of a ticket sanctioned by the police in the amount designated as permissible and at a definite time. Finally, dealers, bakers and confectioners can be forbidden to supply bread and flour outside of the neighborhood of their business location. The regulation of the government to secure a supply of meat provides that all communities with more than 5,000 inhabitants, in order to furnish the population with meat, must keep on hand a supply of staple goods (pickled meat, smoked goods, bacon and sausages) and must take care for their preservation. The sale is then regulated by the community.

WAR AND RACIAL DEVELOPMENT

In consideration of the enormous extent of the war and the enormous number of soldiers that each nation is putting into the field, the question arises as to what will be the future of the nations involved in the war in sanitary respects if the war destroys such a large number of the most powerful and best developed men, but spares those less capable, the abnormal and diseased who cannot go into the army. This question is answered in an article by the Bonn pathologist, Prof. Hugo Ribbert. He considers the most extreme case, but one which would never be realized, that is, that no one would return from the army. Then for a number of years the nation would lack the men without whom it could not maintain its highest efficiency. To be sure, those who were excluded from the army, by increased exertion, could accomplish a part of that which those who were lacking might have produced, but there would be a certain falling off in the average of accomplishment. On the other hand, however, those who did not take part in the war, with reference to their racial characteristics, and that is the important thing, are not unconditionally of less value, as the diseases which are important in producing unfitness for service have nothing to do with racial characteristics. Another danger is much more serious; that is, the race will be propagated exclusively by the unfit and, to a certain extent, by diseased persons. The percentage of defective and diseased progeny would be so much larger than usual, in proportion as the fathers were not fit for breeding or as the children were exposed to the danger of an infection, particularly to tuberculosis, and because the hereditary pathologic conditions would be transmitted to the children. This danger would be mitigated, however, by the fact that among those unfit for service, there are many who cannot participate in the war for unimportant reasons that scarcely affect their own existence or that of the people, or whose defects cannot be transmitted to their children. Further, not all the progeny are tainted with a hereditary disease because, according to the mendelian laws of heredity, a part remains free, and, moreover, those fit for the war would have begotten a certain number of diseased or abnormal children had they remained at home, and this number must be subtracted if one wishes to determine the effect of the war on the development of the race. On the other hand, it must be remembered that if the hereditarily tainted progeny marry with each other, men and women with the same hereditary characteristics will mate more frequently than before the war. Consequently, the probability of a progeny with the same hereditary taint will be increased, but this danger is not to be rated too high, for the progeny of the unfit is not evident for all succeeding generations. Many with hereditary taint and particularly with the most serious defects do not marry. They would appear quite as rarely as they have in the course of centuries in mankind in general, for, so far as one can judge, the number of individuals with hereditary disease has only increased in the same proportion as the total of the human race. If, in spite of this, a degeneration of the human race is asserted, it must be assumed that certain external injurious circumstances have had, as a result, the appearance of new hereditary diseases.

Now, the assumption that none of those taking part in the war will return is, of course, to be rejected. If only 10 per cent. die, the results that have been mentioned would be so slight that they would scarcely exert any influence in the next generation. The results would be more serious without any extreme assumption if the war should last several decades, like the campaigns of Napoleon, which entailed the slow deterioration of the French nation by the extensive extinction of vigorous individuals.

We may hope that we will be spared such serious disadvantages from the war. It will indeed require a sacrifice of human life which will hinder the development of the people and only be compensated for in a long time, but it will not last so long that this loss will be too striking. The majority of completely efficient men will return and, for that reason, it is not to be feared that the disadvantageous influence of the unfit on the next generation will be very great. The number of efficient men will be quite large enough to insure the vigor of the next generation. This expectation should inspire us with the greatest care to take measures for racial hygiene; that persons with especially severe hereditary taint shall not be allowed to marry, and that no new transmissible defects shall be added to those already in existence.

Association News

THE SAN FRANCISCO SESSION

Ample Hotel Accommodations in San Francisco Assured by Large Number of Rooms Available

117,232 rooms in San Francisco hotels and apartment houses, 56,578 of which are in hotels of 50 rooms and over, are available for use by those attending the 1915 session, according to the announcement of the subcommittee on hotels. As was stated in The Journal last week, this committee has the cooperation of the San Francisco Hotel Bureau, a corporation formed to make as easy as possible the securing of the particular kind of accommodations wanted and at guaranteed rates. This Bureau is incorporated with a capital of $100,000, and is conducted with the official endorsement of the Panama-Pacific International Exposition, San Francisco Convention League, the San Francisco Hotel Association, and other civic bodies. With the cooperation of this responsible Bureau, the subcommittee on hotels assures Fellows of the Association and their guests that the hotel rates will be reasonable. The hotels represented by the Bureau announce a general tariff of from $1 to $3 a person, per day, European plan; and from $3.50 and up, a person, per day, American plan. While, in a few of the more fashionable hotels, the rates are from $4 to $10 a person per day, all who attend the session can be accommodated with modern and good quarters at the lesser rates. Contracts will be made at these rates for any date and for any length of time desired. The most direct way to obtain information regarding the particular kind of hotels or rooming house accommodations desired, is to indicate on the application blank which appeared on page 21 of the advertising section of last week's issue of The Journal (Feb. 20, 1915) (1) whether a hotel or apartment house is desired; (2) if a hotel, whether European or American plan; (3) state definitely the date on which you expect to reach San Francisco; (4) the probable length of your stay; (5) the number of persons to be accommodated, and (6) maximum rate that will be paid. On receipt of your request, the Bureau will furnish the names of a number of hotels or apartments meeting the requirements, and from this list a selection can be made with better judgment.

No fees or charges of any kind will be required by the subcommittee on hotels or the Bureau, but a satisfactory guarantee is asked to assure that the rooms will be used at the time specified in the contract. The Bureau will issue reservation certificates guaranteeing the holder hotel accommodations in accordance with his request, on receipt of application accompanied by $5. This deposit shall apply as part or in full payment for any accommodations or services furnished.

Visitors will be met by uniformed guides of the Bureau, who will furnish strangers with any information desired. Those who arrive in the city without having made hotel reservations will be directed to the Hotel Registration Bureaus which will be established at convenient points and which will assign visitors to hotels in accordance with the rate they desire to pay. Transportation of passengers from the depot bureaus will be provided by the Universal Bus and Taxi Company, which is officially endorsed by the Hotel Association and which will provide a uniform means of conveyance to the hotels, rooming and apartment houses of the city. This service will be extended over definitely prescribed areas, and the charge for each passenger, including hand baggage, will be twenty-five cents.

Railroad Rates to San Francisco

From eastern points to San Francisco, Oakland, Los Angeles and San Diego, round trip excursion tickets will be on sale on and after March 1 to Nov. 30, 1915, with return limit of three months, but in no case later than Dec. 31, 1915. Stopovers will be allowed both going and returning within the final limit of ticket. On all tickets with San Francisco as the destination, reading in one or both directions through Los Angeles, a free side trip from Los Angeles to San Diego will be allowed, provided this is included in the ticket at the time of purchase—it will not be granted after arrival at Los Angeles or under other than the conditions stated. Tickets reading in one direction via Portland, Tacoma, Seattle, Victoria or Vancouver, will be on sale at a rate $17.50 higher than for direct lines both ways.

SOME RATES OF FARE TO SAN FRANCISCO

Boston (according to route to Mississippi Valley gateway)	$ 97.70-	$108.30
Chicago		62.50
Denver, Colorado Springs and Pueblo		45.00
Kansas City		50.00
Memphis, Tenn.		57.50
New York (Differential or Standard Lines)	94.30-	98.80
New Orleans		57.50
Omaha, Neb.		50.00
Philadelphia (Differential or Standard Lines)	92.95-	95.20
Portland, Me. (according to route to Mississippi Valley gateway)	102.70-	113.80
St. Louis		57.50
Washington, D. C.		92.30

Deaths

Theodore Potter, M.D. Medical College of Ohio, Cincinnati, 1887; a Fellow of the American Medical Association; president of the Indianapolis Medical Society in 1911; professor of principles of medicine and clinical medicine in the University of Indiana; attending physician to the Indianapolis City Hospital and consulting physician to the Protestant, Deaconess and St. Vincent's hospitals, Indianapolis; a member of the National Association for the Study and Prevention of Tuberculosis and one of the leaders in the antituberculosis movement in the state; a member of the Tuberculosis Hospital Commission; vice-president of the Indiana Society for the Prevention of Tuberculosis and secretary of the Marion County Society; died at his home in Indianapolis, February 8, from tuberculosis, aged 53. At a called meeting of the Indianapolis Medical Society, February 8, suitable action was taken regarding the death of Dr. Theodore Potter.

Edward Daniels Clark, M.D. University of Buffalo, 1909; a Fellow of the American Medical Association and a well-known young practitioner of Buffalo; for three years connected with the health department of that city, but since last September assistant to Dr. Fred. M. Meader, associate professor of preventive medicine in the College of Medicine of Syracuse University; First Lieutenant, M. C., N. G., N. Y., assigned to Sixty-Fifth Infantry and later transferred to Third Infantry; was found dead in his room in Syracuse, February 13, from the effects of an overdose of chloroform, aged 27.

Paul Pomeroy Allen, M.D. Medico-Chirurgical College of Philadelphia, 1909; a member of the Medical Society of the State of Pennsylvania and assistant secretary of the Medical Society of Franklin County; treasurer of the Cumberland Valley Medical Association; a member of the staff of the Chambersburg Hospital; acting inspector for the State Board of Health of Franklin County; health officer of the Borough; and one of the most promising young practitioners of Pennsylvania; died at his home in Chambersburg, February 10, from pneumonia, aged 29.

Eugene Grignon, M.D. University of Victoria College, Coburg, Ont., 1886; of Menominee, Mich.; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; for two terms coroner of Menominee County, health officer of Menominee, treasurer of Menominee County and judge of the probate court; while making a professional call in the country, January 31, was stricken with cerebral hemorrhage, and died in St. Joseph's Hospital, Menominee, February 2, aged 58.

Henry Frederick Wegener, M.D. Hahnemann Medical College, Chicago, 1874; since 1876 a teacher and high school principal; once president of the Denver Microscopical Society and Colorado State Teachers' Association; for the last seven years head of the science department of the Stadium High School, Tacoma, Wash.; died at his home in that city, February 5, from heart disease, aged 70.

William Fleming Breakey, M.D. University of Michigan, Ann Arbor, 1859; a member of the Michigan State Medical Society; for forty-four years clinical professor of dermatology and syphilology in his Alma Mater; director of the skin clinic of the University of Michigan Hospital; surgeon of U. S. Volunteers during the Civil War; fo[illegible] secretary of the local board of U. S. [illegible] Surgeons; died at his home in Ann A[illegible], [illegible] aged 79.

Edmund A. Chapoton, M.D. Detroit (Mich.) Medical College, 1875; a Fellow of the American Medical Association; clinical professor of principles and practice of medicine in the Detroit College of Medicine, and attending physician to St. Mary's Hospital, Detroit; a member of the Detroit Fire Commission from 1907 to 1913; and from 1888 to 1892, a member of the Detroit Board of Health; died at his home in Detroit, February 6, from heart disease, aged 62.

Lester Charles Mitchell, M.D. New York University, New York City, 1867; a veteran of the Civil War and later a practitioner of Joliet, Ill., and Minneapolis, Minn., and first superintendent of the Minnesota College Hospital; a prominent figure in the grain and milling interests of the Northwest; president of the Aberdeen (S. Dak.) Milling Company; died at the home of his daughter in Hamburg, N. Y., February 12, aged 72.

William Dugan Kelly, M.D. Harvard Medical School, 1903; of Boston; a member of the Massachusetts Medical Society; formerly president of the Boston Medical Society; medical inspector of schools and agent of the Municipal Board of Health of Boston; one of the founders of the clinic and milk station at Elizabeth Peabody House; died in the Carney Hospital, Boston, February 8, from septicemia, aged 34.

Harry Briscoe Vanatta, M.D. Medical College of Indiana, Indianapolis, 1896; a Fellow of the American Medical Association and a member of the Aesculapian Society of the Wabash Valley; formerly of Lerna, Ill.; aged 34; died in Mattoon, Ill., February 1, from the effects of a gunshot wound believed to have been self-inflicted while despondent on account of carcinoma of the stomach.

William Henry Gail, M.D. University of Buffalo, 1864; for many years a practitioner of East Aurora, N. Y.; local surgeon for the Pennsylvania System for thirty-four years; a medical cadet and assistant surgeon of the Eighteenth (N. Y.) Volunteer Cavalry during the Civil War; died at the home of his daughter in Buffalo, February 6, from heart disease, aged 74.

John Wesley Martin, M.D. (License, Kentucky, thirty-seven years' practice, 1893) a Forty-Niner and afterward a practitioner of Kentucky; surgeon of the Fourteenth (Ky.) Volunteer Infantry during the Civil War; who had been operated on in Cincinnati for cat[illegible]ew days before; died at his home in Ashland, Ky., February 3, from acute gastritis, aged 87.

John Franklin Davison, M.D. New York University, New York City, 1881; of Asbury Park, N. J.; for several years a member of the Asbury Park Board of Education and for one year its president; died at the Paul Kimball Hospital, Lakewood, N. J., February 2, after a surgical operation for disease of the intestines, aged 55.

Perry O. Guise, M.D. College of Physicians and Surgeons, Baltimore, 1882; for many years a member and clerk of the Board of Education of Findlay, Ohio; for two terms treasurer of Findlay and four years township clerk; died in the Home and Hospital, Findlay, February 9, from arteriosclerosis, aged 62.

Harry Paul Chambers, M.D. College of Physicians and Surgeons, Baltimore, 1891; a Fellow of the American Medical Association; surgeon to the Commonwealth Iron Company, Florence Iron Company, and Reserve Mining Company, Florence, Wis.; died at his home in Florence, February 9, aged 47.

Thomas Carney, M.D. Albany (N. Y.) Medical College, 1902; of Schenectady, N. Y.; a member of the Medical Society of the State of New York; and a major in the New York National Guard; died in Johns Hopkins Hospital, Baltimore, February 6, after an operation for disease of the stomach.

Casper H. Viehe, M.D. Homeopathic Medical College of Missouri, St. Louis, 1876; a member of the Indiana State Medical Association; an ordained minister of the Evangelical Lutheran Church; died at his home in Evansville, Ind., February 1, aged 78.

William H. Merrell, M.D. Bellevue Hospital Medical College, 1869; of South Branch and Somerville, N. J.; a member of the Medical Society of New Jersey and president of the Somerset County Medical Society; died in the Somerset Hospital, Somerville, February 9, from heart disease, aged 52.

Rufus Franklin Smith, M.D. University of Virginia, Charlottesville, 1881; for many years a practitioner and druggist of Easley, S. C.; president of the Easley Loan and Trust Company and chairman of the Board of School Trustees; died at his home in that place, February 3, aged 57.

John Henry Bird, M.D. College of Physicians and Surgeons, Chicago, 1884; for eight years assistant house physician of the Congress Hotel, Chicago, and later secretary and treasurer of the C. S. Hammond Publishing Company; died at his home in New York City, January 31, aged 73.

George W. Brown, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1868; prominent as an antislavery advocate and founder and editor of the *Herald of Freedom* and of the Conneautville, Pa., *Courier;* died at his home in Rockford, Ill., February 5, aged 94.

John Jasper Lake, M.D. Rush Medical College, 1857; a pioneer resident of DeWitt County, Ill.; for many years a practitioner, druggist and postmaster of Kenney, Ill.; died in the Odd Fellows' Old Folks Home, Mattoon, Ill., February 5, from senile debility, aged 85.

William E. Walker, M.D. Hahnemann Medical College, Philadelphia, 1891; died at his home in West Charleston, Maine, January 11, from a gunshot wound of the heart, self-inflicted it is believed with suicidal intent, while despondent on account of ill health, aged 50.

George E. Waller, M.D. Medical College of Virginia, Richmond, 1861; a surgeon in the Confederate service during the Civil War; for many years coroner and justice of the peace of Henry County, Va.; died at his home in Martinsville, Va., February 2, aged 76.

Richard Flavel Woods, M.D. University of Pennsylvania, Philadelphia, 1895; a Fellow of the American Medical Association; and a member of the Philadelphia Surgical and Philadelphia Obstetrical societies; died at his home in Philadelphia, February 10, aged 41.

Alexander McElroy Rea, M.D. Jefferson Medical College, 1865; assistant surgeon of U. S. Volunteers during the Civil War; for forty-seven years a practitioner of West Middletown, Pa.; died at his home in that place, February 2, from heart disease, aged 72.

J. J. Perry, M.D. University of Louisville, Ky., 1853; surgeon in the Confederate service during the Civil War; for forty-five years a physician of Texas; died at the home of his son in Hempstead, Tex., February 2, from senile debility, aged 87.

Charles Brooks Scott, M.D. University of Buffalo, N. Y., 1881; of Loudenville, Ohio; a member of the village council and of the board of education; a director of the Citizens' Saving Bank, Loudenville, and local railway surgeon; died at Knoxville, Tenn., January 27, aged 57.

Wilford Harris Gragg, M.D. Vanderbilt University, Nashville, Tenn.; 1879; University of Nashville, Tenn., 1880; for ten years superintendent of the Shelby County (Tenn.) Poor and Insane Asylum; died at his home in Gragg Station, Tenn., recently, from pneumonia, aged 61.

Calbe Winfrey, M.D. Washington University, St. Louis, 1847; for seventy-two years a resident of Jackson County, Mo.; surgeon in the Confederate Service during the Civil War; died in St. Joseph's Hospital, Kansas City, Mo., January 30, aged 91.

Jared D. Wetmore, M.D. Hahnemann Medical College, Chicago, 1882; formerly health officer of Yaquina Bay, Ore., and surgeon at the Siletz Indian Agency; died at his home in Portland, Ore., in December, aged 56.

John H. Jenkin, M.D. New York University, New York City, 1893; a member of the Medical Society of the State of New York; died at his home in Shrub Oak, N. Y., January 28, from cerebral hemorrhage, aged 45.

James H. Hoag, M.D. Hahnemann Medical College, Chicago, 1883; of Connersville, Ind.; while attempting to flag a traction car near Connersville, January 24, was struck by the car and died four hours later.

Alfred Napoleon Culberson, M.D. Tennessee Medical College, Knoxville, 1909; of Evens, Ga.; charged with an attack on a woman; was shot and killed by a posse of citizens near Evens, February 4, aged 35.

Kurt Seyferth, M.D. University of Maryland, Baltimore, 1885; formerly professor of languages in Baltimore City College; died at his home in Baltimore, January 9, from disease of the liver, aged 62.

Thomas Walter Taylor, M.D. University of Louisville, 1845; said to be the oldest practitioner in Kentucky; died at the home of his daughter in Henderson, Ky., January 8, from pneumonia, aged 91.

John Wesley Mitchell, M.D. Bowdoin College, Brunswick, Maine, 1863; surgeon of U. S. Volunteers during the Civil War; died at his home in New Orleans, January 12, from arteriosclerosis, aged 78.

William James Allen, M.D. Baltimore University, 1886; a member of the Medical Society of the State of Pennsylvania; died at his home in Landisburg, Pa., Dec. 31, 1914, from nephritis, aged 53.

Henry F. Weis, M.D. University of Heidelberg, Germany, 1863; surgeon of U. S. Volunteers during the Civil War; died at his home in Dayton, Ohio, January 26, from cerebral hemorrhage, aged 84.

John Lloyd McKay, M.D. Philadelphia University of Medicine and Surgery, 1870; of King's Mountain, N. C.; died at the sanatorium at Gastonia, N. C., Oct. 2, 1914, from cerebral hemorrhage, aged 69.

Matthew W. Harvison, M.D. Bennett Medical College, Chicago, 1898; one of the owners of the Harvison Hospital, Palouse, Wash.; died at Los Angeles, January 24, from tuberculosis, aged 52.

William F. Spence (license, Miss., 1882); a practitioner since 1860; for many years health officer of Hancock County, Miss.; died at his home in Caesar, Miss., January 10, from pneumonia, aged 73.

Joseph W. Wood, M.D. University of Louisville, Ky., 1868; for fifty years a practitioner of Metcalfe County, Ky.; died at the home of his daughter in Edmonton, Ky., January 9, aged 79.

Thomas S. Evans, M.D. Vanderbilt University, Nashville, Tenn., 1875; a Confederate veteran; died at his home near Flat Woods, Tenn., January 21, from nephritis, aged 72.

William G. Wilson, M.D. University of Maryland, Baltimore, 1852; for nearly half a century a practitioner of Shelbyville, Ill.; died at his home in that city, January 16, aged 87.

Edwin C. Thompson, M.D. Western Reserve University, Cleveland, Ohio, 1885; died at his home in West Liberty (Slippery Rock), Pa., January 9, from pneumonia, aged 53.

William H. Sherwood, M.D. Western Reserve University, Cleveland, Ohio, 1873; died at his home in Unionville, Ohio, January 26, from cerebral hemorrhage, aged 62.

Homer Dwight Hodge, M.D. University of Michigan, Ann Arbor, 1887; of Jackson, Mich.; died in the Jackson State Hospital, January 26, from paralysis, aged 60.

Thomas J. Spurlock, M.D. Eclectic Medical Institute, Cincinnati, 1856; of McComb, Miss.; died at the home of his son in Summit, Miss., January 22, aged 84.

James Wellington Starr, M.D. Cincinnati College of Medicine and Surgery, 1881; died at his home in Montpelier, Ohio, January 14, from arteriosclerosis, aged 61.

George O'Donnel Walton, M.D. McGill University, Montreal, 1873; for forty years a practitioner of Barbadoes, B. W. I.; died at his home recently, aged 71.

Landon A. Beale, M.D. Missouri Medical College, St. Louis, 1886; was found dead in his office in St. Louis, January 29, from heart disease, aged 47.

John C. Marshall, M.D. Louisville, Ky., Medical College, 1892; of Chuckey, Tenn.; died at his old home in Newmansville, Tenn., Dec. 30, 1914, aged 50.

J. Henry Brooks, M.D. Georgetown University, Washington, D. C., 1865; died at his home in Washington, January 29, from cerebral hemorrhage, aged 74.

Elizabeth Ellis, M.D. Harvey Medical College, Chicago, 1902; died at her home in Burns, Ore., Oct. 15, 1914, from cerebral hemorrhage, aged 60.

Marvin C. Wood (license, Utah, 1906); a practitioner since 1899; died at his home in Kanab, Utah, Dec. 29, 1914, from cerebral hemorrhage, aged 60.

Francis E. Carpenter, M.D. Jenner Medical College, Chicago, 1903; died at his home in Chicago, Dec. 28, 1914, from nephritis, aged 61.

Marie Jean Stees, M.D. Illinois Medical College, 1898; died at her home in Chicago, February 4, aged 53.

Cornelius F. Dowd, M.D. University of Pennsylvania, Philadelphia, 1867; died at his home in Willow Springs, N. C., Nov. 26, 1914, aged 74.

Michael William Kelleher, M.D. Bellevue Hospital Medical College, 1885; died at his home in Chicago, January 30, from nephritis, aged 58.

Frank S. Sovreen, M.D. New York Homeopathic Medical College, New York City, 1880; died at his home in Evart, Mich., Oct. 4, 1914.

John Morgan Howe, M.D. New York Homeopathic Medical College, 1879; died at the home of his son in New York City, Nov. 13, 1914.

Manley Horatio Sprague, M.D. Columbus, Ohio, Medical College, 1880; died at his home in Ottumwa, Iowa, January 13, aged 61.

Arthur Hubert Martel, M.D. Laval University, Montreal, Que., 1902; died at his home in East Angus, Que., Nov. 24, 1914, aged 38.

David Hammell, M.D. Long Island College Hospital, Brooklyn, 1877; died at his home in Detroit, Mich., January 23, aged 66.

Alvin P. Sawyer, M.D. Hahnemann Medical College, 1880; died at his home in Chicago, February 3, from nephritis, aged 59.

Abner Mulholland Rosebrugh, M.D. University of Toronto, Ont., 1859; died at his home in Toronto, Nov. 26, 1914, aged 79.

Andrew Dixon Packer, M.D. Long Island College Hospital, Brooklyn, 1908; died at his home in Brooklyn, February 1, aged 35.

George W. Deweese (license, Indiana, years of practice, 1897), died at his home in Fredericksburg, Ind., Nov. 3, 1914, aged 76.

Robert Bowen, M.D. American Medical College, Cincinnati, 1853; died at his home in Berlin, N. J., Dec. 12, 1914, aged 87.

Columbus V. Wedding, M.D. University of Louisville, Ky., 1879; died at his home in Kansas City, Mo., January 26, aged 60.

Freeland L. Etter (license, Texas, 1902), a colored practitioner of Harris, Tex.; died in Dallas, Tex., Oct. 25, 1914.

William J. Murphy, M.D. Albany, N. Y., Medical College, 1881; died recently at his home in San Bernardino, Cal.

Alexander Jenks (license, Kan., 1901), of Hanover, Kan.; died in the Topeka State Hospital, January 24, aged 71.

John W. Ruble (license, Tenn., 1889), died at his home in Del Rio, Tenn., January 21, aged 64.

Marriages

Henry Wise Wood, M.D., Maben, W. Va., to Miss Mamie Estella Warrener of Athens, Ohio, at Washington, D. C., Dec. 22, 1914.

George Reese Satterlee, M.D., New York City, to Miss Mabel Alger Powell of Ghent, N. Y., in New York City, February 9.

Frederick Melville Horsley, M.D., Lovington, Va., to Miss Laura Stringfellow Boyd of Farmville, Va., January 27.

Gilbert De Witt Dare, M.D., Morrisonville, N. Y., to Miss Mabel Claire Hancock of Colorado Springs, Colo, February 6.

Franklin Edward Murphy, M.D., to Miss Cordelia Antoinette Brown, both of Kansas City, Mo., February 16.

P. A. Surg. Ausey Hamilton Robnett, U. S. N., to Miss Mary Louise Manifor of Las Animas, Colo., January 21.

Henry Bush Beeson, M.D., Hannibal, Wis., to Miss Ann Elizabeth Urquhart of Medford, Wis., February 10.

William White McKenzie, Salisbury, N. C., to Miss Florence Robinson of New Orleans, February 1.

P. A. Surg. John Bowdoin Mears, U. S. N., to Miss Eulalie Mary Kahle of Elkton, Va., January 23.

William Roy Owen, M.D., to Miss Johanna Skogmo, both of Manford, N. Dak., February 1.

Howard Tracy Langworthy, M.D., to Miss Eva A. DaVoll, both of Brooklyn, February 10.

Irving Freiler Stein, M.D., to Miss Lucile Oberfelder, both of Chicago, February 20.

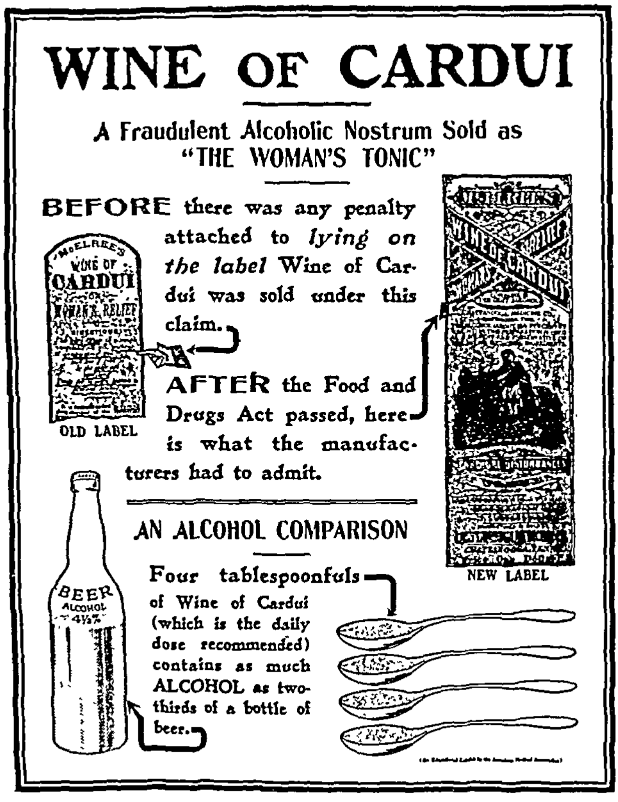
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

WINE OF CARDUI[1]

The Company Solicits the Medical Profession for Testimonials to its Nostrum

Readers of THE JOURNAL are familiar with the articles that have been published regarding Wine of Cardui, manufactured by the Chattanooga Medicine Company whose chief owner is said to be John A. Patten. After the appearance of THE JOURNAL's article in its issue of July 18, 1914, John A. Patten and the Chattanooga Medicine Company entered suit against the American Medical Association and the editor of THE JOURNAL for $300,000.



WINE OF CARDUI

A Fraudulent Alcoholic Nostrum Sold as "THE WOMAN'S TONIC"

BEFORE there was any penalty attached to *lying on the label* Wine of Cardui was sold under this claim.

AFTER the Food and Drugs Act passed, here is what the manufacturers had to admit.

AN ALCOHOL COMPARISON

Four tablespoonfuls of Wine of Cardui (which is the daily dose recommended) contains as much ALCOHOL as two-thirds of a bottle of beer.

For displaying the original, of which this is a miniature, Dr. Oscar Dowling, President of the Louisiana State Board of Health, has been sued for $25,000 by the Chattanooga Medicine Company. The Louisiana State Board of Health upholds its president and declares Wine of Cardui a fraudulent nostrum pernicious and baneful in effect.

Since this suit was brought the same concern has sued one of the trustees of the American Medical Association, Dr. Dowling, for $25,000 because he, as President of the Louisiana State Board of Health, exhibited in the Health Exhibit Train, sent out by the state of Louisiana, an educational placard (which we reproduce in miniature on this page) dealing with Wine of Cardui. Still later, the concern entered suit against *Harper's Weekly* for $200,000 for the publication of matter regarding Wine of Cardui.

Wine of Cardui retails for a dollar a bottle and according to all reports it is a good seller. For years the profits accruing from the sale of this nostrum have been used lavishly in many directions. The power that comes with great wealth easily and not-too-scrupulously acquired, has been evident since the filing of these libel suits.

In THE JOURNAL for Sept. 12, 1914, a letter was published describing the alleged methods of the Chattanooga Medicine Company in its attempts to obtain from physicians favorable testimony regarding Wine of Cardui. This letter, written by a physician, gave what purported to be a conversation between another physician, whom we will call Dr. A, and a Wine of Cardui representative. Briefly, the story was that Dr. A had been told that the Chattanooga Medicine Company desired to retain him as an expert; that a retainer would be paid immediately for his services, and that if he would go before their attorney and make a deposition favorable to Wine of Cardui he would be paid $25 a day and expenses, and should his services be needed as an expert at the Chicago trial, he would be paid $50 a day and expenses for these services. Several months after this letter was published, Dr. A seems to have repudiated the conversation reported to have taken place between himself and the Wine of Cardui representative and to have warmly espoused the cause of the "patent medicine" concern's agent. Without going into details at this time regarding this matter, it is pertinent to note that in the interim between THE JOURNAL's publication and Dr. A's "repudiation," certain incidents had occurred locally. Dr. A, who is not a member of his local society, seems to have taken umbrage at some of the other physicians in his town who are members of the local organization. The details in this case may be gone into more fully at another time.

That the Chattanooga Medicine Company is very busy throughout the South attempting to get physicians to express themselves favorably to the Wine of Cardui nostrum, is quite evident. We give a few letters that have been received in this connection. This from a physician in Missouri:

> "A gentleman came into my office and after having been seated, inquired if I had ever used Wine of Cardui in my practice. I replied that I had not. He then asked me if, as a druggist, I had noted good from its sale and use in the way of saving doctors' bills for suffering ladies. I told him I believed every word THE JOURNAL had published about Wine of Cardui, and he said that his company would be able to show that it had done a wonderful lot of good and that later I would find the Association facing a court order and injunction, and they courted investigation; in fact insisted upon having justice in this matter. I dismissed him with the remark that I believed Wine of Cardui one of several colossal frauds foisted on suffering and trustful humanity and that I wanted to see justice prevail. He bade me good day remarking, 'Doctor, you may later have reason to know that you have been wrongly informed.' Had I acted differently, I believe I could have learned more, but I could hardly contain myself. I believe they are making a systematic hunt for anything that will sustain their suit."

And this from a physician in Illinois:

> "I wish to mention that the Chattanooga Medicine Company is dubiously soliciting signatures to prove that their preparation is not sold as a beverage. Agent wanted me to sign that I did not know that Wine of Cardui was sold as a beverage. I refused."

This from a physician in Virginia:

> "I wish to commend your work in exposing 'patent medicine' frauds and I am particularly interested in the Wine of Cardui suit. A few days since a winsome young woman (a Miss Ervin) from Chattanooga came through this section soliciting the profession for testimonials showing the merits of Wine of Cardui. Such 'nerve' is hard to imagine. She visited most of the men in this section but I know of but one from whom she obtained a testimonial. Later I learned *that the* young woman is a lawyer and that such testimonials are to be introduced as evidence in the suit of Wine of Cardui against the American Medical Association."

While this is from a physician in Arkansas:

> "Yesterday I was told by a *salesman for the* Chattanooga Medicine Company that they were going to have five thousand doctors' testimonials in their suit against you regarding the merits of *Wine of* Cardui. *He said all* these doctors would be graduates of reputable medical colleges but, of course, failed to state how they were going about getting these testimonials."

The letter that follows, while somewhat of the same nature as the preceding *ones, is* especially interesting for reasons that will soon be apparent. It comes from a physician in Louisiana:

> "Yesterday, a representative of the Chattanooga Medicine Company whose name is J. G. Cairns and *who lives in* Chattanooga, Tenn.,

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[1] See editorial p. 744.

called to get me to give my opinion on Wine of Cardui. I told him I knew nothing about the concoction from *personal* experience, as I *never had a patient whom I knew to* take it, but that I accepted the criticisms of The Journal of the American Medical Association. He said he was interviewing the physicians all over the country asking them for the very worst opinion they have of Wine of Cardui. He said that in some parts of Alabama and Tennessee the doctors prescribed 'The Woman's Tonic.' Whereupon I asked him if he would have a physician to attend a sick member of his family who would prescribe Wine of Cardui and he said: 'If I lived in the back-woods, remote from good ethical doctors I'd have to consult them or none.' He further said only country doctors prescribe Wine of Cardui. He said he was looking after the legal part of the Chattanooga Medicine Company's business, appearing to want to leave the impression that he was a lawyer, but upon my putting the question direct he admitted that he is not a lawyer. I did not instruct him to not quote me in the opinion I gave, but feel sure he will not."

It would be interesting to learn whether the J. G. Cairns who is alleged to be interviewing physicians in the interest of the Chattanooga Medicine Company is the Rev. J. G. Cairns, who, according to Chattanooga newspapers, was arraigned last November before a trial committee of the Holston Methodist Conference on charges of "lying," "dishonesty" and "irregularities in the administration of the Alton Park church building fund." J. G. Cairns, the minister, was exonerated of these charges at the same time and by the same conference that extended a "whitewash" to John A. Patten, and the Wine of Cardui business. After his exoneration, J. G. Cairns was made associate pastor of Mr. Patten's church, the First Methodist Church of Chattanooga. Our readers will remember that the former pastor of this church, the Rev. C. H. Myers, did not sympathize with the methods by which Mr. Patten made his money or with the influence this money exercises in the church. Mr. Myers was removed from his pastorate at the same conference that exonerated Cairns and Patten. As recently as February 1, the Rev. J. G. Cairns has come to the open defense of John A. Patten in a letter to the Chattanooga *Times*, a paper that appears to be the mouthpiece of Patten and his interests. Mr. Cairns rebuked a local politician—unnamed—for opposing Mr. Patten who, according to Cairns, had granted to the politician "favors, political and financial." It might be a matter of interest to Methodism to determine whether J. G. Cairns of the First Methodist Church of Chattanooga is on the pay roll of the Chattanooga Medicine Company. If the Rev. J. G. Cairns is the same person as the J. G. Cairns referred to by our correspondent then the nice problem presents itself: Can the position of associate pastor to the First Methodist Church of Chattanooga be adequately filled by a man who is traveling around the country in behalf of the Chattanooga Medicine Company and Wine of Cardui?

Harper's Weekly for Feb. 27, 1915, has another article on Wine of Cardui referring specifically to Mr. Patten's suit. In commenting on the attempts of the Chattanooga Medicine Company to get physicians to testify to the value of Wine of Cardui, *Harper's* says that the methods of the concern, while shrewd and "slick," fail to take into account the honesty of physicians. It believes that while some few doctors may be willing to barter their professional reputations for a mess of pottage, the great majority will not be. *Harper's* correctly appraises the medical profession.

LOUISIANA STATE BOARD ACTS

Apropos of what is published above is the following, which appeared in the *New Orleans Item*, Feb. 18, 1915.

HEALTH BOARD HITS AT WINE OF CARDUI

Backs Dowling In Holding It Pernicious; War on Others

Branding Wine of Cardui as being "among the most fraudulent" of "nostrums pernicious and baneful in effect" the State Board of Health Thursday afternoon endorsed by resolution the campaign of Dr. Oscar Dowling, president of the board, against it and other patent medicines.

"These nostrums are pernicious and baneful in effect," says the resolution in part. "The enormous profits accruing from the sale of so-called medicines are derived largely from the income of the very poor and the unfortunate. Among the most fraudulent of these preparations is Wine of Cardui, manufactured and sold by the Chattanooga Medicine Company, Chattanooga, Tennessee, and St. Louis, Missouri, as proved by analysis in the laboratory of the state board of health, the ingredients of this nostrum being alcohol and vegetable materials practically therapeutically inert.

"*Therefore be it resolved:* That the State Board of Health unanimously approves and supports the campaign against harmful patent and proprietary nostrums now being prosecuted by Dr. Oscar Dowling, the executive officer of this board.

"That he is authorized to push the campaign to the full extent of the law with the hope of destroying the baneful influence of the owners and manufacturers of the many noxious articles now offered to the public.

"That the exhibit placed on the Louisiana state board of health exhibit car which illustrates the fraudulent claims of Wine of Cardui and other patent preparations, has our full approval and commendation.

"That the suit by the Chattanooga Medicine Company, Chattanooga, Tennessee, brought against the president of the Louisiana State Board of Health as an individual, should have been filed against the president and executive officer of the State Board of Health and in the prosecution of this suit the Louisiana State Board of Health will give Oscar Dowling, its president and executive officer, cordial support and assistance to the limit of its power and resources.

"That we welcome the opportunity to assist in this suit, the outcome of which we are confident will be a death blow to the popular use of Wine of Cardui and all other fraudulent patent nostrums."

Correspondence

Cabot, Bernard Shaw, and the Medical Profession

To the Editor:—In the February number of *McClure's Magazine*, I am quoted in an article by R. H. Schauffler as backing Bernard Shaw's charges against the medical profession, except his attitude on animal experimentation. Shaw's attack is summarized in his own words, including the following sentence: "Most doctors have no honor and no conscience." Other sentences in Shaw's habitual exaggerative style follow, and my approval of them all is assumed. The facts of the matter are as follows:

In the *Survey*, June 3, 1911, I wrote, at the request of that magazine, a review of Shaw's play entitled, "The Doctor's Dilemma," and said that as regards "Mr. Shaw's principal theses and in the main, I find myself heartily in agreement with him." I did not suppose that any one would take Shaw seriously enough as to suppose that a ridiculous calumny, such as the statement that "most doctors have no honor and no conscience" would be regarded as a significant or an important remark. It should go without saying that I have no sympathy with such a statement, as I believe the medical profession to be as honorable and conscientious a body of men as any in the country. In the article on which Mr. Schauffler's misstatement of my position is founded, I summed up what in my opinion were the main offences of our profession, offences which we all recognize and deplore. I specified such shortcomings as these: that we do not tell patients with sufficient vigor the truth about their habits and their own responsibility for disease; that we sometimes foster cases of imaginary illness; that we sometimes perform unnecessary operations; that fee splitting and other abuses are widespread. No one, I suppose, will doubt these facts and no one will have much doubt that they will continue as long as the doctors of the country are as miserably poor as at present. So long as the economic status of the doctor is what it is, we cannot look for much improvement in that direction.

This was Shaw's belief about the whole matter and it is mine. It is not a question of blaming anybody but of getting something done. That "something" is raising of the standards of examining boards for the license to practice medicine. This is what the medical profession can do, of itself, and do immediately. It cannot, of itself, carry out the other greatly needed reform which I believe is coming through the more intelligent activity of hospital trustees, namely, the payment of hospital physicians for full time work and the selection of these physicians by methods that exclude favoritism and the methods of the close corporation.

I should add that I understand perfectly Mr. Schauffler's unintentional mistake in the statement of my position. He is a man for whom I have the greatest admiration, and I am sure he would not willingly misrepresent any one.

Richard C. Cabot, M.D., Boston.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DENATURED ALCOHOL FOR EXTERNAL USE

To the Editor:—In The Journal, Jan. 2, 1915, p. 72, it is stated that the external use of any alcohol containing wood spirits is unsafe.

When denatured alcohol first came out, we very cautiously began the use of it for external use, in place of grain alcohol. After a very extended experience covering the use of at least ten barrels, we are justified in stating that it takes the place of grain alcohol in all rubbings and for wet dressings for wounds. We have never seen the slightest trace of poisoning following its use, and we now never use grain alcohol for either of these purposes. We certainly think that the idea that denatured alcohol is poisonous for external use is erroneous and is not based on facts of its use.

F. E. Clough, M.D., Lead, S. Dak.

Answer.—The caution against the use of denatured alcohol has been made by The Journal on the ground that while bad results may occur only in a very small number of cases, it is better to employ a perfectly safe preparation. It is probable that this statement should have been made with some qualification.

Although clinical reports indicate decided danger to the digestive apparatus, nervous system, eyesight, etc., from intoxication due to the use of methyl alcohol (especially of deodorized methyl alcohol) for such external uses as massage of the skin, yet in all probability the employment of "denatured" (methylated) alcohol is, for these external uses, harmless. It is not at all likely that sufficient methyl alcohol is absorbed into the system by occasional rubbings with denatured alcohol (which, like the British and German mixtures, contains about 10 per cent. of crude methyl alcohol) to produce untoward effects. However, *wet* dressings of wounds with denatured alcohol offer a better chance of minor intoxications than rubbings.

ETHYLHYDROCUPREIN

To the Editor:—Please discuss the chemistry and pharmacology of ethylhydrocuprein.

T. E. Fuller, M.D., Texarkana, Texas.

Answer.—Ethylhydrocuprein hydrochlorid is a chlorid of ethylhydrocuprein, a derivative of the base cuprein derived from the bark of China Cuprea. Ethylhydrocuprein is closely related to quinine, differing from the latter in that it contains an ethoxy group instead of a methoxy group, and contains two more atoms of hydrogen, which convert an ethenyl group into an ethyl group. Thus quinin has the formula $C_{20}H_{24}O_2N_2$ and ethylhydrocuprein the formula $C_{21}H_{28}O_2N_2$.

Cuprein is said to have an action very similar to that of quinin, but much weaker. The introduction of the ethoxy and ethyl groups, forming ethylhydrocuprein, make the action more pronounced, so that it is asserted that its action as an antimalarial agent is greater than that of quinin. For ethylhydrocuprein it is claimed, especially, that it has a specific action on pneumococcus infection by which it produces a curative effect in doses that are not injurious to the organism. R. Levy (*Berl. klin. Wchnschr.*, Dec. 30, 1912), after a number of experiments, concludes that it is possible to check and permanently cure an infection with *Streptococcus mucosus* after it has reached its full development, while the untreated control mice succumb to the bacteriemia in a typical manner. G. Izar and R. Nicosia (*Berl. klin. Wchnschr.*, March 9, 1914) report successful results in obstinate cases of malaria in which the use of quinin had been unsuccessful.

This preparation is exploited as a proprietary under the name Optochin, and is controlled by U. S. patent. Although the statements made in the literature are favorable to the preparation, they do not appear to have been confirmed.

OPIUM

To the Editor:—Dr. Macht's interesting chapter on the History of Opium (The Journal, Feb. 6, 1915, p. 477) recalled to my mind the rimed couplets given below. These were found written on a fly leaf of Wood and Bache's United States Dispensatory (Ed. 2, 1834) and are in the handwriting of my grandfather, Daniel R. Bailey, who graduated from the University of Pennsylvania in 1837. They were probably in common use among the students of that day and may have been published before.

OPIUM

This grand specific eases pain,
Produces sweat when dry the skin,
In doses small the frame excites
And puts to flight those sleepless nights.
When painful cough excites the breast
'Twill pain allay and cough arrest;
If morbid products need restrain,
We'd give it then in half a grain;
But if hard pain we would assuage,
Or calm the maniac in his rage,
We'd deal it then with liberal hand,
One grain to three the case demands;
But if we wish immediate rest,
We must procure the pure and best;
That species which from Smyrna comes
Is far the best of Thebaic gums;
'Tis large and soft, of grayish brown,
And covered with a leafy down.
The tincture, powder or the pill
Most indications will fulfil;
For weakly nurslings at the breast
The elixir proves to be the best;
But if phlogosis rage within
And burning heat affect the skin,
The salts of morphia, it is plain,
Would less excite the heart and brain.

Clifford B. Farr, M.D., Philadelphia.

LITERATURE ON ELECTRIC SHOCKS

To the Editor:—Please inform me if there is any recent literature or publication on the subject of electric shocks.

W. F. Plumley, M.D., Rochester, N. Y.

Answer.—In The Journal, March 15, 1913, p. 851, there was published a list of references on this subject. The following articles are subsequent to this list:

Brocx, D.: Fatal Electric Accidents, *Nederlandsch Tijdschr. v. Geneesk.*, 1914, lviii, No. 5.
First Aid to Those Overcome by Mine Gases, Electric Shock, etc., Miscellany, The Journal, Nov. 14, 1914, p. 1784.
Groler: Treatment of Heartstroke, Sunstroke and Electric Injuries, *Deutsch. med. Wchnschr.*, Jan. 1, 1914; abstr., The Journal, Feb. 14, 1914, p. 578.
Stewart, P.: Case of Hysterical Monoplegia Following Electric Shock, *Brit. Med. Jour.*, Dec. 20, 1913.
Report of Committees on Resuscitation from Electric Shock and Resuscitation from Mine Gases, Proceedings of the Conference of the American Medical Association on Medical Legislation, abstr., The Journal, Feb. 28, 1914, p. 724.
Stewart, P.: Case of Hysterical Monoplegia Following Electric Shock, *Brit. Med. Jour.*, March 7, 1914.
Witthaus, R. A., and Becker, T. C.: Medical Jurisprudence, Forensic Medicine and Toxicology, Vol. 2, New York, William Wood & Co., $6.
Work of Commission on Electric Shock, Current Comment, The Journal, Nov. 1, 1913, p. 1637.
Jellinek, S.: Electric Accidents, *Wien. klin. Wchnschr.*, Oct. 30, 1913.
Fisch, C. F.: Electric Accidents, *Wien. klin. Wchnschr.*, Sept. 4, 1913; abstr., The Journal, Oct. 11, 1913, p. 1417.

CORONER'S DUTY IN ALASKA

To the Editor:—1. What constitutes a coroner's case in Alaska?

2. Must each district have a coroner's physician, and is there any provision made for one?

3. Can a person be buried without a physician's death certificate or burial permit?

H. E. Auringer, M.D., Flat, Alaska.

Answer.—1. In Alaska a coroner can be appointed either by the President of the United States or by the judge of the Alaska district court. In the case of any sudden death or injury which is apparently due to crime or is a suicide or an attempted suicide, the coroner must investigate the circumstances and inquire by jury into the cause thereof.

30. Statutes at Large, Section 1325, et seq.

2. There seems to be no requirement that districts must have a coroner's physician, but it is provided that witnesses must be subpenaed to appear before the coroner's jury, and these witnesses must include a physician who is to inspect the body and give his opinion as to the cause of death. This serves the same purpose.

30. Statutes at Large, Section 1325, et seq.

3. There seems to be no specific provision in this regard. Doubtless the President or the officials under him in the executive department of the government, or even certain Alaska officials, could by rule require such. The powers as vested in the executive of the United States under the Public Health Service law would seem to warrant this conclusion. Application to the Public Health Service at Washington, D. C., would determine this point.

INK FOR WRITING ON GLASS

To the Editor:—Please give me a formula for a water-proof solution with which I can write on glass bottles and which will not rub off when carried loose in grip. White color. Black also.

R. L., Sidney, Iowa.

Answer.—A good ink for writing on glass may be made as follows:

White Ink: Mix 1 part Chinese white (water-color pigment) or barium sulphate with 3 to 4 parts sodium silicate solution (water glass). The sodium silicate solution should have the consistency of glycerin.

Black Ink: Mix 1 part liquid Chinese ink (or Higgin's Eternal Ink, or some similar carbon ink) with 2 parts sodium silicate solution.

Apply with an ordinary steel pen. The ink will dry in fifteen minutes and will withstand water. It may be readily removed by scraping with a knife.

ARTICLES ON ECZEMA

To the Editor:—I wish to get the names of authors and titles of papers bearing on the subject of eczema, its diagnosis and differentiations.

J. M. S.

Answer.—The following is a list of references on this subject:

Knowles, F. C.: External Origin of Eczema, *Jour. Cutan. Dis.*, January, 1913; abstr., The Journal, Jan. 25, 1913, p. 319.

Findlay, L., and Watson, H. F.: Eczema Oris as Manifestation of Congenital Syphilis, *Lancet*, London, March 29, 1913; abstr., The Journal, April 26, 1913, p. 1330.

Davis, H.: Infantile Eczema, *Brit. Med. Jour.*, Oct. 10, 1914.

Adamson, H. G.: Eczema and Some Eruptions Mistaken for Eczema, *Clin. Jour.*, London, Feb. 26, 1913.

Johnston, J. C.: Causation of Eczema, *Jour. Cutan. Dis.*, January, 1913; abstr., The Journal, Jan. 25, 1913, p. 319.

Gaskill, H. K.: Bromid Eruption Simulating Blastomycosis or Eczema, The Journal, March 21, 1914, p. 912.

Montgomery, D. W., and Culver, G. D.: Eczema Marginatum of Toes, The Journal, April 4, 1914, p. 1076.

Simpson, C. A.: Infantile Eczema, The Journal, April 6, 1912, p. 995.

Eczema and Occupation, Queries and Minor Notes, The Journal, May 18, 1912, p. 1527.

Ravogli, A.: Eczema as Seen by General Practitioner, abstr., The Journal, Nov. 16, 1912, p. 1819.

Charbonneau, E. G.: High Frequency Currents in Eczema, *New York Med. Jour.*, October, 1912.

Towle, H. P., and Talbot, F. B.: Infantile Eczema and Indigestion, *Am. Jour. Dis. Child.*, October, 1912, p. 219; abstr., The Journal, Oct. 19, 1912, p. 1487.

Cunningham, W. P.: Eczema Descendens, *New York Med. Jour.*, June 28, 1913.

Montgomery, D. W., and Culver, G. D.: Differential Diagnosis of Palmar Syphilis, Eczema and Psoriasis, *California State Jour. Med.*, November, 1913.

Finkelstein, H.: Dietetic Treatment of Eczema in Children, *Ztschr. f. Kinderh.*, 1913, viii, No. 1; abstr., The Journal, July 19, 1913, p. 232.

Hazen, H. H.: Acute Eczema Early in Course of Syphilis, *Southern Med. Jour.*, Oct. 1, 1913.

Schkarin, A.: Eczema as an Expression of Exudative Diathesis in Infants, *Jahrb. f. Kinderh.*, August, 1913.

Mautner, F.: No Specific Skin Reaction in Eczematous Children, *Ztschr. f. Kinderh.*, 1913, viii, No. 6.

Hichens, P. S.: Total Cases of Eczema in Children, *Brit. Journal Child. Dis.*, September, 1913.

Jannison, W. A.: Eczema: Its Prevention and Treatment, *Edinburgh Med. Jour.*, November, 1913.

Chipman, E. D.: Basic Principles in Eczema, *California State Jour. Med.*, May, 1914.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Colorado: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, March 8-9. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven. Homeopathic; New Haven, March 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Eclectic: New Haven, March 9. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Florida: Homeopathic, Jacksonville, March 5, Sec., Dr. C. W. Johnson, 33 E. Monroe St., Jacksonville.

Idaho: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.

Maine: Portland, March 9-10. Sec., Dr. F. W. Searle, 776 Congress Street.

Massachusetts: Boston, March 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Missouri: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Montana: Helena, April 5. Sec., Dr. William C. Riddell, Helena.

Rhode Island: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

Utah: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Ohio Reciprocity Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports that 28 candidates were licensed through reciprocity from Oct. 22 to Nov. 18, 1914. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1912)	Kansas
Hahnemann Medical College and Hospital, Chicago	(1913)	Illinois
Rush Medical College	(1913)	Illinois
Indiana University	(1912)	Indiana
Physio-Medical College of Indiana	(1902)	Indiana
Baltimore Medical College	(1903)	Indiana
College of Phys. and Surgs., Baltimore	(1907) (1912,2)	W. Virginia
Detroit College of Medicine and Surgery	(1914)	Michigan
University of Michigan, Dept. of Med. and Surg.	(1901) (1914,3)	Indiana; Michigan.
University of Michigan Homeopathic Medical College	(1906) (1912) (1913) (1914)	Michigan.
St. Louis University	(1913)	Missouri
New York Homeo. Med. Coll. and Flower Hosp.	(1903)	New York
Cleveland Homeopathic Medical College	(1905)	Michigan
Starling Medical College	(1897)	W. Virginia
Jefferson Medical College	(1906) (1913)	Penna.
University of Pennsylvania	(1911) (1913)	Penna.
University of Pittsburgh	(1913)	Penna.
Medical College of Virginia	(1909)	Virginia

Arkansas Reciprocity Report

Dr. W. S. Stewart, secretary of the State Medical Board of the Arkansas Medical Society, reports that 17 more candidates were licensed in Arkansas, through reciprocity, during 1914. The following colleges were represented:

College	Year Grad.	Reciprocity with
University of Alabama	(1911)	Mississippi
George Washington University	(1912)	Oklahoma
Georgia College of Eclectic Med. and Surg.	(1908)	Georgia
University of Georgia	(1906)	Georgia
Chicago Coll. of Med. and Surg.	(1910)	Illinois
Rush Medical College	(1884)	Indiana
Indiana University	(1909)	Indiana
Hospital College of Medicine, Louisville	(1905)	Kentucky
Louisville and Hospital Medical College	(1908, 2)	Kentucky
Tulane University of Louisiana	(1910) (1913)	Louisiana Mississippi
University Medical College, Kansas City	(1908)	Oklahoma
Chattanooga Medical College	(1907)	Oklahoma
Meharry Medical College	(1914)	Oklahoma
University of Tennessee	(1900)	Oklahoma
Vanderbilt University	(1886)	Oklahoma

Minnesota October Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Oct. 6-8, 1914. The total number of subjects examined in was 17; total number of question asked, 80; percentage required to pass, 75. The total number of candidates examined was 9, of whom 8 passed and 1 failed. Ten candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University	(1914)	90.1
Rush Medical College	(1913) 92.9; (1914) 82.4, 86.3, 87.1,	94.1
University of Minnesota	(1914)	89.3
University of Pennsylvania	(1914)	85.9

FAILED

College	Year Grad.	Per Cent.
Milwaukee Medical College	(1909)	67.1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1910)	Dist. Colum.
College of Phys. and Surgs., Chicago	(1910) (1912)	Illinois
Northwestern University	(1911)	Illinois
State University of Iowa, College of Medicine	(1901)	Iowa
Harvard University	(1914)	Wisconsin
Western University	(1913) (1914)	Ohio
Milwaukee Medical College	(1903)	N. Dakota
Queen's University	(1892)	Iowa

Kentucky December Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 16-18, 1914. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 13, of whom 9 passed and 4 failed. Two candidates were given reregistration licenses. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Louisville	(1914)	83
College of Phys. and Surgs., Baltimore	(1914)	85
Johns Hopkins University	(1911)	79
Syracuse University	(1911)	90
Ohio-Miami Medical College	(1914)	83
Lincoln Memorial University	(1914)	80
Meharry Medical College	(1912)	78
University of Tennessee	(1906)	83
Vanderbilt University	(1914)	87

FAILED

College	Year Grad.	Per Cent.
Bennett Medical College	(1913)	67
Louisville National Medical College	(1912)	67
University of Louisville	(1910)	54
Vanderbilt University	(1913)	70

Pennsylvania December Report

Dr. N. C. Schaeffer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the written examination held at Philadelphia, Dec. 1-3, 1914. The total number of subjects examined in was 5; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 43, of whom 31 passed and 12 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgetown University	(1907) (1913)	2
Bennett Medical College	(1913)	2
University of Louisville	(1911)	1
Maryland Medical College	(1912,3) (1913,1)	4
Harvard University	(1891) (1908)	2
Cornell University	(1911)	1
Fordham University	(1912)	1
New York Homeopathic Coll. and Flower Hosp.	(1913)	1
University and Bellevue Hosp. Med. Coll.	(1913)	1
Jefferson Medical College	(1912,1) (1913,4) (1914,1)	6
Medico-Chirurgical Coll. of Phila.	(1911,1) (1913,3) (1914,1)	5
University of Pennsylvania	(1911) (1913,2)	3
Woman's Medical College of Philadelphia	(1912)	1
National University, Athens	(1910)	1

FAILED

College	Year Grad.	Per Cent.
University of Louisville	(1889)*; (1911) 69.2; (1912)	64.8
Baltimore Medical College	(1913)	72.4
Maryland Medical College	(1905)*; (1912) 67; (1913) 67.2, 68.8,	69.4
Harvard University	(1913)	73
Tufts College Medical School	(1912)	71.6
Barnes Medical College	(1899)	69.6

* No grade given.

Book Notices

With Sabre and Scalpel. The Autobiography of a Soldier and Surgeon. By John Allan Wyeth, M.D., LL.D. Cloth. Price, $3 net. Pp. 535, with illustrations. New York: Harper & Brothers, 1914.

"The chief purpose of this volume is to record from personal observation something of the social, economic and political conditions which prevailed in the South before, during and immediately after the Civil War." This is the introductory sentence of the introduction. The book is not strictly an autobiography; one is compelled to refer to a brief biography, in the form of an appendix, to learn even when and where the author was born. In the body of the book Dr. Wyeth speaks of visiting Dr. J. Marion Sims, in Paris, "at which time I met for the first time his youngest daughter, named Florence Nightingale"; but he does not say that she later became Mrs. John A. Wyeth. This, however, one learns from the appendix. There is a lack of consecutiveness; in one of the first chapters, of four or five pages, we are carried from the time when, as a boy of 4, he began to ride horseback, to the tragedies of the war, when he lost his favorite horse, "Fanny." In the next chapter we again are carried back to his boyhood days where we are told about "Major," king among dogs, and the battles he had won, and forward again to the Civil War. But this is not a fault, although the method has resulted in some repetition. These chapters of experience are candidly and unaffectedly written, are full of human interest, and are more interesting than would be a formal, consecutive autobiography.

Dr. Wyeth's description of the social and economic conditions in the South as they existed in his boyhood days is startling in the revelation as to what changes can take place in the span of one human life. His discussion of the slavery question is conservative and dispassionate—much more so than could have been the case if written fifty years ago. He asserts that there was a period in the decade from 1830 to 1840 when the solution of the problem was possible, when there were emancipation societies organized in the South. He is convinced that if "the conservative and better portion" of the North "had united in earnest and friendly cooperation with their brothers of the South" the tragedy of the rebellion would never have been enacted. The author was less than 17 years of age when he became an active participant in the war. In those chapters devoted to the Civil War he graphically describes the life and experience of a private soldier in the army, in battles and in prison. His prison experience was in Camp Morton, Indianapolis, where he was sent, Oct. 15, 1863, when only 18, and where he remained until February, 1865. For three years after the war, he was engaged in farming, contracting, etc., and in 1867 took up the study of medicine, graduating in 1869. But he did not practice long. His first fatal case convinced him that he was not yet prepared; so two months after he put up the shingle he pulled it down and went to Arkansas to make money to take up postgraduate work. Later he went to New York, graduated from Bellevue in 1873, and entered on his professional life's work.

Part II is devoted to medical matters, and is the part that will be of special interest to the medical, rather than to the lay, reader. In this Dr. Wyeth discusses the founding of the polyclinic, refers to his work on the carotid artery, to his bloodless hip-joint and shoulder operations, and to other surgical and professional matters.

Few men have had such a varied experience; here is the list of his occupations, as outlined in the book: farmer, woodsman, Confederate soldier, cotton planter, cattle buyer, medical student, river pilot, building contractor, land speculator and telegraph operator. On top of this came his medical career, in which he has made a name comparable with any in the annals of American surgery. Chapters from the life of such a man, presenting his experiences, adventures and observations, are indeed welcome. The book is not "dry"; even when discussing slavery and the war, and when telling of the obstacles that were met and overcome, there is continually being interjected some amusing incident, some story to amuse and enlighten the reader.

The Anatomy of the Human Skeleton. By J. Ernest Frazer, F.R.C.S., Lecturer on Anatomy in the Medical School of St. Mary's Hospital. Cloth. Price, $6.50. Pp. 274, with 219 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This book deals with the whole skeleton—bones, joints and ligaments—together with the other structures immediately associated. The point of view is that of a mechanician studying a machine and the way it works—the harmonious cooperation of all the parts, each adapted to the other and each influencing the other. The bones are not considered as individual structures, isolated from others and laid each by itself on the table, but "each part of the skeleton has been used as a peg on which to hang a consideration of the neighboring structures." It is the full-grown machine which is studied, and this is done with care and thoroughness. The emphasis is laid on the mechanical and physical factors of its working. Each phase of action is considered and profusely illustrated. Nearly all the illustrations are from original dissections, and are mostly colored. They show well the various phases of activity of each part of the skeleton, always as it exists in the body surrounded by the other structures which work with it. These illustrations are excellent. They bring out interesting relations not often noted, and constitute a valuable contribution to anatomic illustration. The influence of the associated structures on the form and the working of the skeletal structures is clearly shown. Thus each bone is shown to have a primitive form due to inheritance and ontogenetic development, and also a surface molding due to the action on it of muscles and to a lesser extent of vessels, nerves, etc. The book is evidently the product of much personal work and study by the author directly over the structures themselves. It is not a study of the literature but of the things. It is original. There are no references to the literature in the whole work. In some respects it is rather to be regretted that the literature is not considered more carefully. In the brief references to embryology and evolution the author has omitted from consideration some interesting and important contributions. Thus, in his reference to the development of the acetabular cavity, page 123, he takes no account of the os acetabuli, discovered by Albinus. A consideration of this bone, and of the excellent papers of Rambaud, of Renault and of Amantini, would have modified greatly his explanation of the existence of the ligamentum teres femoris. And in his account of the "hypothetical" evolution of paired limbs in vertebrates, beginning on page 61, there is no consideration of the theory of Gegenbaur, nor any mention of the continuous lateral fin fold theory of Thacher, Balfour and Mivart. From the point of view of embryology, comparative anatomy and evolution, the student will get more from the many classic books and papers on those subjects. The author of this book does not present things from that aspect. But students, physicians and especially surgeons, who wish to understand thoroughly the working of the skeletal machine, and the way in which not only the form of its parts but also its mechanical qualities of strength, elasticity, etc., contribute to the efficient working of the body as a whole, will find in this book much that is interesting and valuable.

Laboratory Manual for the Detection of Poisons and Powerful Drugs. By Dr. Wilhelm Autenrieth, Professor in the University of Freiburg. Authorized Translation of the Fourth German edition by William H. Warren, Ph.D., Professor of Chemistry in Wheaton College. Cloth. Price, $2 net. Pp. 320. Philadelphia: P. Blakiston's Son & Co., 1915.

The present edition presents the subject in a handy volume, and describes the systematic detection of poisons in a clear and sufficiently exhaustive manner. Quantitative methods are given, and some of the more recent biologic tests find their place among the older standard methods. Among these may be mentioned the test for arsenic by growth of *Pencillium brevicaule* and the serum test for human blood. Tests for a considerable number of alkaloidal substances, not usually included as poisons, are described, and the modern synthetics are quite comprehensively treated. A feature which will be attractive to students of pharmacy is the inclusion of a number of assay processes from the German Pharmacopeia. The method of Reinsch, which is very convenient as a preliminary test for the use of physicians, receives no mention. The descriptions and directions for the various processes are clear and concise. Explanations of the theoretical aspects of the various processes are given in small type. This makes the book of some service in the teaching of general chemistry. The work of the translator has been well done—the literary style is good. The translator has introduced a somewhat fuller discussion of the subject of "normal arsenic" than was given in the original. He has also described a modification of the Gutzeit method for the quantitative estimation of arsenic as worked out by Professor Sanger. It must be remembered that this is a laboratory manual, and hence presents none of the medicolegal considerations which are of such importance to the physician. A few pages devoted to plain directions for the procedure in cases of poisoning with regard to antidotal treatment, *intra-vitam* tests of urine, stomach contents, etc., and the collection and transmission of materials to the analyst, would greatly enhance the value of the work.

Miscellany

Poisoning by Tetrachlorethane

The progress of industry is always disclosing new dangers for the workers. A new form of poisoning was brought to light at an inquest, held in London, on a French-polisher employed in an aeroplane factory, whose duty was to apply to parts of aeroplanes a varnish bearing the trade name of Emaillite. He complained at times that the smell of the material affected him. The witnesses agreed that the fumes left an unpleasant taste in the mouth, especially in the morning. The deceased developed jaundice, and attributed it to the vapor from the varnish. He had begun to work at the factory in August, when pressure of work, owing to the war, caused a large increase in the output of the factory and in the staff. He left about the middle of October, when he looked very ill. About this time, also other workmen developed jaundice. It was noticed by the smell that the vapor from the varnish hung about in invisible clouds, so that one would walk into a patch of it quite a long distance from the place where it was being applied; also that the smell was much less noticeable at higher levels. The building was large and without partitions. The material was applied in one corner of the premises. Dr. W. H. Willcox, physician to St. Mary's Hospital, stated in evidence that he attended the deceased at the hospital for jaundice, nausea, and sickness mornings. There was slight pain in the upper abdomen. The liver was enlarged, but there was no sign of anemia, or alcoholic excess. He analyzed the varnish and found it was a mixture of methylated spirit, acetone, benzene and tetrachlorethane. He distilled the material, and found that the bulk of the liquid distilled over at between 63 and 80 C. (145.4 and 176 F.). It was volatile, and quickly evaporated, yielding a vapor 1.91 times heavier than air. On visiting the air-craft work, he was much struck by the way in which the vapors hung about even at a distance of 30 yards from where the material was being used. He placed white rats on perforated platforms in glass vessels, each containing a different constituent of the material and one the material itself, for eight hours a day for a week. After being kept in the vapor of the varnish and of the tetrachlorethane, the rats became drowsy and remained so after removal for some little time. After an hour or so they fed and became active, but did not gain in weight. In the acetone vapor the animal was drowsy, but gained in weight as the week advanced, and became normal at once when removed from the vapor. The same phenomena occurred in regard to the benzene, but in the methylated spirit the animal was not affected. After seven days' treatment the animals were killed. The rat kept in the tetrachlorethane vapor showed marked changes in the liver, signs of fatty degeneration and bile staining. The rat kept in the vapor of the material itself showed similar but less marked liver changes. In the other rats no changes were present to the naked eye. Microscopic examination of the rat exposed to tetrachlorethane showed fatty degeneration and bile staining and cloudy swelling in the liver and kidneys. Dr. Willcox recalled the case in which carbon tetrachlorid used as a hair wash proved fatal in London in 1909. The substance now under consideration was one of the same series and was a powerful poison. He had investigated other cases at the factory. Certain symptoms were common to all: drowsiness while at work, loss of appetite, nausea, vomiting, headache, a peculiar taste and irritation at the back of the throat, jaundice, with pale stools and high-colored urine, constipation generally, and no anemia. In a few cases the patients became delirious and severely ill. In one case there was conjunctivitis. In several cases the symptoms disappeared when the patient was absent from work, but on resuming they returned speedily in an aggravated form. In one case, a very severe one, the patient was very ill at the present time—there was much ascites, owing to cirrhosis of the liver. He found several workers in the factory suffering from unmistakable signs of the onset of the poisoning. They had loss of appetite, nausea and a tendency to sleepiness. He had no doubt that the illness could be entirely avoided by proper arrangements at the factory to get rid of the vapor. Two deaths were discovered at a later inquest also related to this cause. In one the subject was a young woman employed in an aeroplane factory who died from toxic jaundice with uremic symptoms, and the other subject was a girl of 19 who had intense jaundice and toxic degeneration of the liver was found. The government is taking energetic measures to prevent further accidents from this cause.

The Doctor's Bag

Perhaps nothing will better illustrate the change that has occurred in the practice of medicine during the past twenty-five or thirty years than to note the sort of appliances carried by the country doctor now as compared with former times. During the eighties the manufacturing pharmacists began the plan of supplying doctors, whether practicing in the city or country, with all their drugs in tablet form. When active drugs are used and the tablet contains but a single ingredient, or at most two or three, whose combination has a recognized value, there can be very little objection to this method of dispensing, and indeed much may be said in its favor. But soon all sorts of combinations of drugs appeared. Most of these are thoroughly unscientific or inert, or contain ingredients whose action is antagonistic to each other, and in most of them no one could anticipate what their action would be. This led to exceedingly loose prescribing and caused a habit in doctors inclined to be careless or hasty of giving the patient what the doctor had with him rather than what the patient's condition required.

Most country doctors filled their emergency bags with these tablets and carried little else. Indeed, the refinements in diagnosis which we now have did not exist, and prescribing was necessarily less accurate.

Lately we looked through the bag of a country doctor who tries to practice according to modern standards, and this is what we found: two soft catheters; a pocket case containing scissors, scalpels, lances and forceps; another small case containing an electric lamp and specula for examining the ear, nose and throat, and a magnifying glass; a Tycos sphygmomanometer; a Tallqvist hemoglobin scale; a pipet for counting the white corpuscles, and another for red corpuscles, with appropriate diluting fluids for each; a number of slides for making blood smears; two blood serum tubes and two agar slants; three tubes of old tuberculin for making the von Pirquet test; a hand-ball syringe; sterile gauze; cotton and bandages; a roll of adhesive plaster; a rectal tube; needle for hypodermoclysis and for intravenous injection of fluids or for spinal puncture; an aseptic glass syringe; a syringe for exploring purposes; a tube of smallpox vaccine; needles threaded with silkworm-gut and catgut in sealed glass tubes; a pair of rubber gloves and the following drugs: a bottle of bichlorid tablets, calomel and soda tablets, headache tablets, A. S. & B. pills, assayed Tr. digitalis, Tr. iodin, a tube of sterile petrolatum, 3 ounces of alcohol and two half-pound cans of ether. This physician also carried a hypodermic syringe and a case of tablets for hypodermic use, a clinical thermometer and a Bowles stethoscope.

It will be seen from the above equipment that about all that this doctor tried to do was to make a scientific diagnosis, and then ordered from the local drug store the medicine he thought his patient required. He does not claim that it is an ideal equipment, but it was evolved by twenty-five years of practice as that which best suited his particular needs. It is subject to change as need requires, and it suits him better than a bag full of tablets that he, at least, cannot use intelligently.—The *Medical Reporter* of the Chester County (Pa.) Medical Society.

Medicolegal

Not a Waiver of Privilege

(Nordyke & Marmon Co. vs. Whitehead (Ind.), 106 N. E. R. 867)

The Supreme Court of Indiana says that, in this action brought by an administratrix to recover for the death of an employee of the defendant company, the defendant contended that the court erred in sustaining the plaintiff's objection to certain questions propounded to the defendant's witness, a physician who attended the decedent immediately after his injury. A son of the decedent had testified that when the physician examined his father he (the witness) was present and saw certain bruised spots on his father's body. The defendant sought to prove by the physician that no bruises were found, and the court excluded the testimony on the ground that it was privileged. It was contended by the defendant that by offering the evidence of the son the plaintiff waived the privileged character of the physician's testimony as to the same subject-matter. The supreme court cannot so hold. The rule that all facts learned by a physician while examining or conversing with a patient are to be treated as confidential is a beneficent one and one which is not to be lightly broken down. The court sees no reason to hold that the circumstances before it were sufficient to bring this case within any recognized exception to the rule stated or to create a new exception thereto.

Negligent Care by Parents and Insanitary Condition of Home of Injured Child

(Gigoux vs. Yamhill County (Ore.), 144 Pac. R., 437)

The Supreme Court of Oregon affirms a judgment for $1,000 damages for the death of 10-year-old Emma Gigoux, who, on Sept. 21, 1912, stepped into a hole in a bridge, causing abrasions of the skin on both sides of the leg. The court says that she was taken home, a short distance from the place of the injury, the limb washed with soap and warm water, the wounds bathed with peroxid, a mixture of glycerin and phenol (carbolic acid) applied to the injured parts, and bandages placed thereon. The little girl was thereafter frequently bathed, clean clothing exchanged for that which had been worn, and the treatment referred to was repeated each morning for about ten days, when, incrustations having formed over the abrasions, it was supposed that the wounds were properly healing. In a few days, however, blood poison set in, whereupon physicians were called; but, they being unable to effect a cure, she died of septicemia on October 5. The defendant alleged, among other things, that there was only a slight scratch and during the first ten days or so Emma, with no proper treatment of the scratch, engaged in her usual play about the premises of her parents, permitting her clothing to rub and irritate the scratch and other articles to come into contact with it, and it to become unclean and filthy, and some ten days after the accident her limb became infected and sore, and same thereafter resulted in the ailment which caused her death. But there was no error in not permitting the defendant to offer testimony in support of the alleged insanitary condition of her home at the time of the accident and during her last illness. It was argued that the defendant's answer averred a new and intervening cause, but the court believes that the pleader, in the part of the defense referred to, intended to charge contributory negligence on the part of Emma's parents in failing to call a physician when she was hurt, in permitting her clothing to irritate the wounds, and in not exercising greater care in respect to the alleged insanitary conditions of the home, whereby the little girl's death resulted. As tending to uphold the latter view, counsel undertook to show that the girl's wounds might have been infected by germs when being bathed, by inquiring of Mrs. Gigoux, on cross-examination: "Did you ever boil the basin, or disinfect it in any way?" and, when an objection was sustained to the question, he said: "We are trying this case on the theory that the negligence of the parents would be an element." However, no error was committed in refusing to receive evidence of the alleged negligence of the girl's parents as to their care and treatment of her after she was injured. This action was brought by her father as the administrator of her estate.

Including the Element of Experience in Questions Asked Experts

(Chicago, I. & L. Ry. Co. vs. Gorman (Ind.), 106 N. E. R. 897)

The Appellate Court of Indiana, in affirming a judgment in favor of plaintiff Gorman for personal injuries, says that two physicians who had examined him several times after he had received the injuries, were called by him as expert medical witnesses. After they had respectively detailed the facts ascertained by such examinations, they were asked to give their professional opinions respecting the origin and nature of said injuries. Each question contained substantially the following: "From your examination of Mr. Gorman, . . . basing your answer on your experience as a medical man and the facts that you have detailed to this jury that you found existed," etc. Objection was made that the form of the question called into action the experience of the witnesses. But the court does not think there was error in that. As indicated, the witnesses were called and testified as experts. A question propounded to such an expert for the purpose of eliciting an opinion should be so framed as to require that such opinion be based on facts testified to by such witness, or on facts assumed hypothetically, or on both classes of facts. Here no facts were assumed hypothetically, and since each of the witnesses was required to base his opinion on facts testified to by him, it was conceded that the questions were correct in form, except it be on account of the element of experience, included therein. It was argued that such element in such questions brings them under the condemnation of the rule announced in Horne vs. Williams, 12 Ind. 324, to the effect that an expert medical witness may not give in evidence the particulars of his own private practice. The court does not so understand the questions here. Experience is a very potent factor in the process by which a person becomes an expert in any line. An expert, as the word implies, is one having experience. While, strictly speaking, it may be true that the word "experience" may mean the course or process by which one attains knowledge and wisdom, yet the former term is frequently used as the equivalent of the latter terms. The word "experience" implies skill, facility, or practical wisdom, gained by personal knowledge, feeling or action. The possession of practical wisdom is an essential in order that one may be an expert. The expert submits the facts in a particular case to the scrutiny of the wisdom so acquired, and thus he gives an opinion. Any reasonable construction of the questions under consideration leads to the conclusion that by the particular feature objected to the witnesses were called on to use that particular attribute without which they would not have been experts. The court did not err in overruling the objections to the questions.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

Amer. Assn. of Pathologists and Bacteriologists, St. Louis, March 26-27.
Medical Society of the Missouri Valley, Omaha, March 25-26.
Tennessee State Medical Association, Nashville, April 13-15.

CONFERENCE ON HEALTH LEGISLATION

Held in Chicago, Feb. 15, 1915

The Eleventh Annual Conference on Medical Legislation, under the auspices of the Council on Health and Public Instruction of the American Medical Association, was held February 15.

The chairman, DR. HENRY B. FAVILL, Chicago, said in part: The purposes of the administrative forces in this department of the American Medical Association can be summed up under the general idea of forming and molding public opinion. Public opinion with us, as in every great movement, must be regarded as fundamental. We have no authoritative American Medical Association policy. The Association has no hard-and-fast program. It is a mobile organization so far as concerns its definite achievements. Its relationship to the state organizations and to the public is one that is purely informal and advisory in character. Our own affairs, so far as they come within the range of effective activities, are of a very indefinite type. I say this the more forcibly because it is desirable at this time and at every time to emphasize the fact that the American Medical Association is not undertaking to dominate either its own membership or its public relationship. We have no desire or power to dictate anything in the way of strictly medical affairs or medicopublic affairs, and our position in the matter is and must continue to be strictly advisory. The question is, Why do we concern ourselves with the matter? And the answer is, Because there is a moral obligation on us to concern ourselves with the matter just to the extent that we are fit and equipped so to do. We have definite knowledge in some directions. We have mature, well-thought-out conceptions of our public relationships. We have a very clear understanding in many directions regarding public weal and public interest. So far as we have these conceptions more than people outside of the profession, so far are we under obligation to make effective what we know and believe. It is for this reason that we go on, under all sorts of discouragements, under all sorts of discrediting, trying, not to drive, but rather to lead the public to a strong, intelligent, cooperative action with us, looking to its own reconstruction on physical lines for its own protection.

Report of the Secretary

DR. FREDERICK R. GREEN, Chicago: The rapidly increasing public interest in health topics, the necessity of rational, practicable legislation for the protection of the public health, and the manifest importance of avoiding premature, immature and unwise legislative experiments in this field, all unite to emphasize the importance and the rapidly growing necessity of a more intelligent and scientific method of handling these subjects. The question which we must answer is whether or not the medical profession is qualified or will qualify to assume leadership in this field. If we cannot or will not, then we cannot complain if other forces take the lead which should belong to us. Competent leadership in any field involves two factors: first, accurate knowledge of the situation, and second, definite plans for its improvement. Let me particularly emphasize in this connection the necessity of physicians as a class recognizing the importance of medical sociology. The forty years which cover the development of modern medicine have been so crowded with efforts to increase our scientific knowledge that practically all of the attention and the best minds of the profession have been devoted to this portion of the field. In the old days when the practice of medicine was limited largely to the personal relations between physician and patient, the neglect of medical sociology involved no serious consequences. To-day, however, with the rapidly growing importance of the community and the diminishing importance of the individual, the necessity of careful, able, scientific study of this subject is becoming apparent.

The subjects for discussion at this conference are four in number, on each of which a bill has been drafted as a basis for discussion. Two of these are incidental and two are fundamental. These bills are not to be regarded as in any sense final or authoritative, but rather as suggestions and for criticism.

The report of the Committee on the Regulation of Medical Expert Testimony in insanity cases will show that the bill which will be presented is intended as a demonstration of a general bill which can be applied to other classes of cases.

The bill on the prevention of infant blindness was drafted by the old committee on this subject which preceded the Committee on Conservation of Vision. It will also be submitted for discussion and criticism.

Report of Committee on Medical Expert Testimony

Prof. E. R. Keedy, Northwestern University Law School, Chicago, presented the report of this committee, submitting an act providing a method for obtaining and presenting in court evidence regarding the insanity of the defendant in criminal cases.[1]

DISCUSSION

Dr. Harold N. Moyer, Chicago: This bill is more extensive in its applications and in what will prove to be its ultimate usefulness than a greater effort would have been to cover the field of expert testimony. As to the scope of the bill, it refers only to one narrow phase of expert medical testimony, namely, that which governs the admission of this testimony in criminal cases in which insanity is raised as a defense. I believe that narrowing of it is an exceedingly wise provision from a practical standpoint. There are two reasons why it should be limited. One is, it is easy to get such a bill enacted, whereas it would be practically impossible to get through any legislature a bill as broad as we could draw it. The other reason is that its practical application will aid in its passage. The bill establishes certain definite principles, and eventually, if this bill is adopted in any state, its usefulness, its simplicity, will lead step by step in its application to other fields of litigation.

Prof. E. R. Keedy, Chicago: This matter of expert medical testimony has not only been worked on by this committee of your Council, but by a larger committee of the American Institute of Criminal Law, of which two members of your committee, Dr. Moyer and myself, are members, so that in this bill we have presented the results of the labors of the two committees extending over a period of three years. The bill has already been presented to the American Institute of Criminal Law and unanimously approved by that body. After further consideration, we decided as a practical legislative matter that it would be wiser to confine the bill to insanity and testimony in criminal cases alone, and that is the form in which the bill has been presented to you. The only section of this bill as drawn regarding which we have any doubt as to its constitutionality is Section 2. Some states may hold that it is unconstitutional, although in other states it would be upheld as constitutional, as in Illinois. However, there is great difference of opinion, and that is one of the things which is being considered now by this committee and by members of the legislature who are going to handle the bill in the Illinois Legislature.

Dr. Victor C. Vaughan, Ann Arbor, Mich: Is it not true that in certain states Section 1 of this bill has been adopted and has been declared unconstitutional on the ground that it gives to the expert or experts appointed by the court too much authority? That was the case, if I am not mistaken, in Michigan.

Prof. E. R. Keedy, Chicago: Yes, in Michigan, and the statute was declared unconstitutional on two grounds, one of which was that it violated a clause in the constitution which states that court judges have no right to summon witnesses at common law, as it would give those summoned by the court prestige over those summoned by the parties involved. The other ground on which the statute was held unconstitutional was that it failed to provide the giving of notice to the council for both sides that such witnesses had been appointed.

Dr. S. L. Jepson, Wheeling, W. Va.: Is it not true that, according to Section 1 of this bill, the court is under obligation to award fees to experts?

Prof. E. R. Keedy, Chicago: That is true. This bill says that "the witnesses summoned by the judge shall be allowed such fees as in the discretion of the judge seem just and reasonable, having regard to the services performed by the witnesses." While that is not satisfactory for the purpose of securing the best witnesses, we know as a fact that experts who are summoned by the parties involved receive more than ordinary witness fees, so unless there was such a provision, the court would not award the fee. There are provisions for the compensation of witnesses to be fixed by the court and payable out of the county or state treasury, and no question has been raised as to the constitutionality of such sections.

Dr. Victor C. Vaughan, Ann Arbor, Mich.: This law was in effect in Michigan from 1905 up to 1909, and we boasted that we were the only state in the Union that had a decent law concerning expert testimony. Both doctors and lawyers were well pleased with the law. I gave expert testimony a great many times under the law, and the whole atmosphere of the courtroom was different from what it was in other states at that time where I also gave testimony, and so we were proud of Michigan. When the Supreme Court declared it unconstitutional, that decision met the disapproval of doctors and lawyers, and so even in Michigan there is room for improvement in supreme courts.

Prof. E. R. Keedy, Chicago: The only instance wherein a definite proposition was made was in Massachusetts. A bill was introduced into the legislature there which provided for and stipulated exactly what the requirements of an alienist should be. He should be a graduate of a recognized medical school, according to the State Board of Examiners in that state, and he should have so many years of clinical experience and so many years connection with a hospital. That bill failed to pass, and I think it would have been unwise to pass it. Your committee felt helpless in the matter of proposing a test. There are certain powers given the court in this matter, and although the jury may pass on the credibility of witnesses, the question of qualification itself lies in the hands of the court.

Judge Albert C. Barnes, Chicago: This bill brings the two professions together on common ground. We recognize that the complaint has been made for a long time that in the presentation of a case in court there is very little opportunity for the expression of medical theory. Perhaps the medical profession has lost sight of a very important fact, that the alienist is not consulted in court as a family physician. If members of a family are desirous of ascertaining the mental condition of a certain member of that family, they consult an alienist, and not a jury. In the trial of cases the determination of the final fact is left to the jury, and is not to be determined by the opinions of the medical profession. Therefore, they have to have a standard or a test by which sanity or responsibility may be determined. The complaint of the medical profession has been that they are not concerned with definitions, but only with conditions and methods of treatment. But we have to have a standard in the courts by which a jury may be guided, and that standard in this state and most states is a very simple one. It is whether or not at the time of the act the individual knew whether it was wrong, and whether he had the ability to choose to do the act or not and of controlling his conduct in accordance with that choice. That ought to be a fair enough test to apply to anybody wandering around the streets or in society. Alienists can be expected to testify only on a subject which has many elements of uncertainty; but when actions are so frequent, especially those of prominent and wealthy citizens, there are calls for the talent of alienists. I recognize that we may expect a disagreement among alienists from the very nature of the subject, but one would be almost led to believe from practical experience in courts that either the subject was beyond the pale of scientific knowledge and lay in the realm of speculation, or those professing to have knowledge of it are not always honest and sincere in their opinion. I would not cast the blame for this situation alone on the medical profession. The lawyer is senior partner in that abuse. He is the real instigator of it. He needs a defense, and in the language of the day, he needs it bad. He needs that situation usually in that class of cases in which the defense of insanity is a great mask for an appeal to the unwritten law. Far better would it be for the law to recognize a defense of that character than that eminent members of the legal and medical professions should have engaged in a conspiracy against the truth. As to the provision in this act which provides for calling into the case disinterested witnesses, I cannot agree that it will in no way interfere with experts. I think it will; not real experts, but men who profess to be experts will hardly dare come into the case for a reward and subject themselves to the criticism of opposing and disinterested opinions that will be called into the case under the provisions of this bill. There lies a great evil, and this bill is to my mind well calculated to remove it.

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[1] Copies of the bills discussed can be secured from the Council on Health and Public Instruction, American Medical Association, 535 North Dearborn Street, Chicago.

I congratulate both your profession and mine that we are able at last to meet on something like common ground in regard to this important subject, and while this bill may not be perfect, it is well to set it on its way, so that it may receive such criticism and pruning as it will when it passes through legislative hands and the judgment of courts.

Dr. Victor C. Vaughan, Ann Arbor, Mich.: While this is the best we can probably do under the circumstances, how ridiculous it is to put up the question, Is this man insane? to twelve ignorant men. I do not care who testifies, good or bad men, or who pleads, good or bad men. The time must come when all cases of this kind will be tried before a bench of experts, men who are learned in the law and those who are learned in psychology, and they shall diagnose the case and prescribe treatment. I have no hesitancy in saying, after being an expert witness in many of the states of the Union, that in murder cases, whether the claim be insanity, whether it be poisoning, or whatever it may be, the jury system is an absolute failure. No honest man respects it; no rogue fears it. The time will come when all criminal cases will be tried by a bench of expert psychologists who will be both lawyers and doctors. What the legal and medical professions should strive for is not so much to reform the criminal as to stop his breeding. He is not the product of civilization; he is the excrement of civilization, and should be treated accordingly. I do not mean to say that we should hang him or torture him, or anything of that kind, but we should place him where he can no longer feed on the community or reproduce his kind.

Dr. W. L. Beebe, St. Cloud, Minn., moved that the conference approve the bills presented by the Committee on Expert Testimony and recommend their enactment by the legislatures of the various states, which motion was seconded and carried unanimously.

Prevention of Blindness

The secretary presented the draft of a bill for the prevention of blindness from ophthalmia neonatorum, defining ophthalmia neonatorum, designating certain powers and duties, and otherwise providing for the enforcement of the act.

DISCUSSION

Prof. Albion W. Small, University of Chicago: My message to the medical profession is this: In undertaking to put your knowledge of medical cause and effect at the service of your fellow citizens, you are not simply doing that service in this particular matter of medical, sanitary and hygienic legislation, but you are using that as an illustration to teach Americans lessons they need. We need to learn how from those who are competent to teach us in matters which require expert judgment. I hope you will appreciate, therefore, my desire to applaud you as American citizens for your services, not merely as medical men, but as patriotic citizens in pointing to high standards for our American conduct.

Dr. Frank Allport, Chicago: There are at the present time in the United States about 20,000 blind persons who have been made blind by ophthalmia neonatorum. There are twelve states in the Union that have laws on the subject of ophthalmia neonatorum. One of the objects in framing this bill is to have it uniform. In other matters and in other affairs, conditions are different in different states, and what might be applicable in one state would not be applicable in another; but here is a matter that should and must be the same in all states. We ought not to have in such a matter as this individual laws for individual states, but a uniform law for all states.

The use of nitrate of silver in the eyes, according to the method proposed by Credé, has reduced the occurrence of ophthalmia neonatorum from 10 per cent. in the new-born child to 1 per cent. This is a good bill. It should be passed, and I hope the members of this conference will not only recommend but assist in the passage of this bill in the various states.

Dr. George B. Young, Health Commissioner of Chicago: I would like to raise a point in regard to one section of this bill: While I am heartily in sympathy with the purpose of the bill, I question the expediency of the language used on account of the fact that it divides responsibility practically between everybody resident in the house in which a child happens to be born. What we want done in this matter is to narrow down the responsibility to the very narrowest limits, to put it definitely on the physician, midwife or other person immediately in charge of the infant at the time of birth or immediately after birth. If that is not done, you cannot successfully maintain prosecution.

Dr. Henry M. Bracken, St. Paul: All communicable diseases are controlled in Minnesota by regulations of the State Board of Health. We have regulations relating to ophthalmia neonatorum, but they are not enforced because doctors need educating. It is the doctors who are at fault, and we cannot get anything done until not only the doctors themselves get busy, but the medical schools educate the students that are to practice medicine in regard to the importance of this matter.

Dr. Rachelle S. Yarros, Chicago: The suggestion made by Dr. Young of not dividing responsibility too much is excellent. In some cases, if the provisions mentioned in this bill were carried out, the neighbors who come to see the child immediately after birth would be likewise held responsible for not reporting ophthalmia neonatorum. One important thing that should be brought out clearly in such a bill is that ophthalmia neonatorum is due to gonorrhea in many, many instances; also the importance of the use of the Credé solution should be emphasized.

Dr. Frank Allport, Chicago: As to the remarks of Dr. Yarros, it has been the intention of those who are endeavoring to regulate this matter to make the people understand that all cases of sore eyes in babies or ophthalmia neonatorum are not due to gonorrhea. One reason why we have difficulty in getting cases reported is because the impression is abroad in the land that all of these cases are due to gonorrhea, and therefore people regard it as a social and family shame and mortification to report cases of this kind because it is an open admission there is gonorrhea in the family.

State Regulation of Public Health

Dr. Henry M. Bracken, St. Paul: In considering this problem, we should first discuss the methods that have been in vogue. These may be grouped in a general way under three heads:

1. The board which has to do purely with public health matters.
2. The state health commissioner, acting alone or with the board that has practically no responsibility.
3. The board which has charge not only of public health matters but also of the licensing of physicians.

I think it is now conceded that none of these are ideal, and that the third should in no instance be tolerated in future legislation relative to public health.

The first thing to consider in the organization of a state health department is efficiency. This can be secured only by insuring permanency in position for those engaged in the various lines of public health work. Permanency in position can be secured only by the removal of public health activities from political control.

After presenting forms of state health organization in several states and pointing out their weak and strong points, Dr. Bracken said: An ideal organization for state health activities might be somewhat as follows:

Department of Health, consisting of:

1. Public health council.
2. Commissioner of health.
3. Bureaus.
4. Divisions, if necessary.

The council might consist of five members appointed by the governor for five years, one appointment to expire each year. Such council should have authority to make rules and regulations relative to public health. There should be a penalty for failure to comply with such regulations. The council should also have authority to appoint the commissioner of health.

The commissioner of health might well be vested with the authority similar to that now given in New York state.

To aid the commissioner in carrying out his work there should be subdivisions designated as bureaus rather than as divisions. The bureau work could then be subdivided into divisions, if necessary.

If necessary, for lack of other suitable place, to add other responsibilities to a health department than those strictly belonging to it, such as the supervision of food products, labor problems, or examining boards, these could be arranged for under bureaus or divisions, as might be deemed necessary.

The secretary presented a short law creating a state board of health, approved by the Council on Health and Public Instruction; and also a bill drafted by the Medicolegal Bureau as a basis for discussion, but not yet submitted to the Council, which provides for the regulation and supervision of all persons who treat any sickness, injury, etc., of any human being for compensation within the jurisdiction of any state.

He said these were tentative bills and are not to be regarded in any way as finished products, but are submitted as a basis for discussion.

Dr. Henry B. Favill, Chicago: We can only get ahead in this matter by a consensus of opinion, or as nearly a consensus of opinion as may be, and out of these reports and discussions there may come some light for the administrative forces of the Council toward a more formal draft of such bills.

Dr. George B. Young, Chicago: As this discussion is thrown open to a general consideration of the question of public health organization in the states, I think we have to get back to certain first principles. The first thing we run up against is the growing development of the social consciousness of the people of the United States, as expressed in their reaching out and attempting to establish organizations having as the title the attractive name of "public welfare." I am one of those who believe that the public health work of the future, and the public health work of the present, have already taken the shape in which the basal developments are sociologic and not medical. The medical profession must supply men who are not only in a position to handle medical but sociologic side of questions as well —men equipped to handle all the questions which concern public welfare, or its representatives will be relegated to second place. In any organization of this kind which we are coming to, the health department must either swallow the welfare department or the welfare department must swallow the health department. As long as public health work in states or municipalities is confined to looking after the control of communicable diseases and of educating the people for the purpose of limiting the death rate from such diseases, and such related questions as sanitary engineering, which has to do with the water supply, etc., we are bound to be left behind, because the governmental agencies in this country are developing very rapidly along such lines as industrial accidents, industrial safety, occupational diseases, and the care of the child. I do not mean simply infant welfare work, or the child as a general proposition, but housing, and everything of that kind, is going on faster because it is a more popular field. It is the thing of the hour; therefore, it is going on more rapidly than public health development, even as rapidly as that is going on. We have to recognize that situation and proceed accordingly.

I want to put myself on record as believing that what we want is a single-headed health department in the state, with an advisory council, for the purpose of drafting rules and regulations susceptible of immediate interpretation and immediate enforcement as general statutory requirements passed by the legislature.

Prof. Charles R. Henderson, University of Chicago: I have read carefully the draft of the bill which is before you, and I am exceedingly delighted with the fundamental idea in it. I want to point out how exceedingly important the principles contained in this bill are in other matters. When we are trying to improve public service in any line we have the choice of having factional partisan politics to determine for us, or accept the principle which is at the basis of the bill offered here. Men who are learned in medical science should not only be the advisers but they should be in control. For the first time in the history of the world in the Panama zone and in some other parts of the world medical men have not only had advisory power, but administrative power, and we see what splendid results they have given forth, developing not only great medical skill but a very high degree of administrative skill.

I congratulate you on the formulation of this bill. It seems sensible. It may need some revision at the hands of lawyers or doctors, but it points in the right direction, and I believe your meeting here will be a great blessing for our citizens and help to mark some steps forward in the great way to progress.

Dr. H. B. Hemenway, Evanston, Ill.: I want to protest against the board idea in public health work. When the United States Constitution was formed, the framers of it considered the matter of multiple executives and decided against it, and with good reasons, as set forth by Justice Storey, namely, that when you have multiplicity in executives you have lack of efficiency, you have slowness of action, and you have no responsibility. Responsibility is so divided you can never find it; consequently a board of health, strictly speaking, has no legislative authority.

Dr. John A. Robison, Chicago, outlined a proposed bill that the Illinois Efficiency and Economy Committee proposes to introduce into the legislature, and explained the different sections of it.

Dr. R. W. Corwin, Pueblo, Colo.: The greatest obstacle we have to meet in public health matters is the proper enforcement of our laws. What is to be done to improve conditions? Educate the people. How can we teach the people? Until they are taught and understand and learn the importance of carrying out laws, they will not and cannot be expected to obey. For some years I have been engaged in this work, and I find we must educate the people before we can expect them to comply with our requests.

Dr. Walter L. Bierring, Des Moines, Iowa: The Iowa organization of the board of health, which is similar to the one that has been proposed to-day, has been in force for two years, and the governor in his inaugural message referred to it as the most efficient in the history of the state.

Dr. J. M. Baldy, Philadelphia: In administering your law put it up to the people. If they see it is not for your own benefit, they will accept it, and the fact that it is put up to them will educate them. Instead of wasting your energy on getting new laws, put your energies into getting administrators with courage and backbone who will administer the laws.

Dr. R. O. Beard, Minneapolis: Medical men have been the directors of public health work in the past because they were the only men who knew anything about public health matters; but the time has come when other people than the men of medicine know a great deal about public health matters, and public health has become a sociologic and economic problem as well as medical problem.

Dr. C. E. Cantrell, Greeneville, Tex.: I think the people of the different states of the Union are pretty well of one mind, namely, they need an executive head to a health department, and that executive head needs an advisory board. We have that down in Texas, and we put everything on the statute books that we can agree on.

Dr. Henry M. Bracken, St. Paul: I am pleased with the opposition taken by Dr. Young relative to public welfare. Some of us have been preaching that doctrine for a long time. It is hard to get in touch with people outside of the medical profession. I hope there will be a possibility for health workers to get in closer touch with economists.

Dr. Henry B. Favill, Chicago: It is a great disappointment to the conference to chronicle the absence of Hon. G. H. Hodges, governor of Kansas, who was to have read a paper entitled "State Regulation of Those Who Treat The Sick."

In the absence of Governor Hodges, I will ask the secretary of Council, Dr. Green, to introduce the subject.

Dr. Frederick R. Green, Chicago: I have not the slightest hope or intention of filling the place of Governor Hodges in presenting this subject, but desire to call your attention to a tentative bill which you will find under the head of "State Regulation of Those Who Treat The Sick."

There is an earnest desire on the part of the Council and Medicolegal Bureau to get a definite discussion and a concentrated idea in regard to the best method of handling the extremely difficult and complex problems that come up under the general question of the licensing of persons who are to treat the sick or to practice medicine under the various sects.

Dr. Green then gave a brief outline of the history and development of this movement, emphasizing the fact that the entire question was an educational and not a sectarian one and that the only fair basis was a single standard for all.

Dr. Charles H. Cook, Natick, Mass., President of the Federation of State Examining and Licensing Boards: I do not feel that I have had sufficient concrete experience to discuss this subject intelligently, and when I realize that we have with us the executive officers of several state boards who have had actual experience in the courts and elsewhere bearing on the conditions set forth in the bill, I feel they have a right to be heard first, and I shall avail myself of a new beautitude of James Russell Lowell, "Blessed are they who have nothing to say and cannot be persuaded to say it." That is my position in regard to talking about the details of this bill. However, we are getting beyond the first stage principle in the different steps of reform laid down years ago by William Lloyd Garrison, the great antislavery agitator, when he said (I cannot quote his exact words): Talking creates zeal; zeal creates inquiry; inquiry creates opposition; opposition creates action; action creates union, and union creates victory.

Dr. Arthur Dean Bevan, Chicago: I believe the time has distinctly come when the profession and the people of this country recognize the fact that medicine is to-day a science just as much as chemistry is. Feeling as I do about this matter, the practical and clear proposition that confronts us is that we should attempt to obtain public opinion that will enable us to have in our state governments some means by which we can determine whether or not a man or woman is a well-qualified practitioner of scientific medicine; that we should have some way in our state governments of not only determining that point, but designating whether that individual is a competent practitioner of medicine. I do not think anything else is necessary.

Dr. C. N. Suttner, Walla Walla, Wash.: Our state board of examiners is pursuing a relentless warfare against quacks, particularly so-called chiropractics. We have convicted forty-three. We have no legal right to limit applicants that come before the board, but we have assumed the right that a young graduate must have certain qualifications.

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The authors found that the heat production for the sleeping period averages for the ten children 2.7 calories per kilogram and hour. It is highest on this basis for the atrophic and underweight children and lowest for the fattest child. On the basis of a square meter of surface the heat production of normal children shows a decided increase from the early months (2 to 4) to the later months (6 to 12) of the first year. The average of all the ten children is 39.7 calories. The average deviation from the mean heat production in all sleeping periods is about ± 10 per cent. for each of the several formulas expressing the relation of surface area to weight. Almost identically the same average heat production per unit of weight and per unit of surface is obtained when the infants between 2 months and 12 months (sixty-one in all) are compared, namely, 2.7 calories per kilo and hour, 39.3 calories per square meter and hour (Meeh). On the unit of weight all but three of the atrophic and underweight children (forty-eight in all) lie above the line represented by 2.5 calories per kilogram and hour; all the normals (eighteen) lie near this line; and all but one of the overweight infants (five) lie below this line. Two and one-half calories per kilogram and hour or 60 calories per kilogram and twenty-four hours may therefore be called tentatively the "normal heat production" of recently fed, sleeping infants between 2 months and 1 year of age. Included in this figure is whatever dynamic action the foods themselves may have; otherwise the figure is minimal. Hard crying may increase the metabolism as much as 40 per cent.; the requirement for growth and an allowance for non-absorption must be added. The average deviation from the mean on the basis of weight for all these children is 12.1 per cent.; on the basis of surface area (Meeh) 11 per cent. For smaller age groups of normal children the deviation is considerably less on the basis of surface area than on the basis of weight.

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Dr. J. M. Baldy, Philadelphia: In administering your law put it up to the people. If they see it is not for your own benefit, they will accept it, and the fact that it is put up to them will educate them. Instead of wasting your energy on getting new laws, put your energies into getting administrators with courage and backbone who will administer the laws.

Dr. R. O. Beard, Minneapolis: Medical men have been the directors of public health work in the past because they were the only men who knew anything about public health matters; but the time has come when other people than the men of medicine know a great deal about public health matters, and public health has become a sociologic and economic problem as well as medical problem.

Dr. C. E. Cantrell, Greeneville, Tex.: I think the people of the different states of the Union are pretty well of one mind, namely, they need an executive head to a health department, and that executive head needs an advisory board. We have that down in Texas, and we put everything on the statute books that we can agree on.

Dr. Henry M. Bracken, St. Paul: I am pleased with the opposition taken by Dr. Young relative to public welfare. Some of us have been preaching that doctrine for a long time. It is hard to get in touch with people outside of the medical profession. I hope there will be a possibility for health workers to get in closer touch with economists.

Dr. Henry B. Favill, Chicago: It is a great disappointment to the conference to chronicle the absence of Hon. G. H. Hodges, governor of Kansas, who was to have read a paper entitled "State Regulation of Those Who Treat The Sick."

In the absence of Governor Hodges, I will ask the secretary of Council, Dr. Green, to introduce the subject.

Dr. Frederick R. Green, Chicago: I have not the slightest hope or intention of filling the place of Governor Hodges in presenting this subject, but desire to call your attention to a tentative bill which you will find under the head of "State Regulation of Those Who Treat The Sick."

There is an earnest desire on the part of the Council and Medicolegal Bureau to get a definite discussion and a concentrated idea in regard to the best method of handling the extremely difficult and complex problems that come up under the general question of the licensing of persons who are to treat the sick or to practice medicine under the various sects.

Dr. Green then gave a brief outline of the history and development of this movement, emphasizing the fact that the entire question was an educational and not a sectarian one and that the only fair basis was a single standard for all.

Dr. Charles H. Cook, Natick, Mass., President of the Federation of State Examining and Licensing Boards: I do not feel that I have had sufficient concrete experience to discuss this subject intelligently, and when I realize that we have with us the executive officers of several state boards who have had actual experience in the courts and elsewhere bearing on the conditions set forth in the bill, I feel they have a right to be heard first, and I shall avail myself of a new beautitude of James Russell Lowell, "Blessed are they who have nothing to say and cannot be persuaded to say it." That is my position in regard to talking about the details of this bill. However, we are getting beyond the first stage principle in the different steps of reform laid down years ago by William Lloyd Garrison, the great antislavery agitator, when he said (I cannot quote his exact words): Talking creates zeal; zeal creates inquiry; inquiry creates opposition; opposition creates action; action creates union, and union creates victory.

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Boston Medical and Surgical Journal

February 11, CLXXII, No. 6, pp. 201-240

15 Venereal Disease and Prostitution. W. D. Bieberbach, Worcester.
16 Differential Diagnosis and Indications for Treatment of Tumors of Neck. O. C. Smith, Hartford, Conn.
17 Renal Infections. W. H. Robey, Jr., Boston.
18 Case of Human Rabies. H. Linenthal, Boston.

California State Journal of Medicine, San Francisco

February, XIII, No. 2, pp. 43-86

19 *Operations in Eye Clinic of Stanford University.* A. B. McKee, San Francisco.
20 *Skin Test in Typhoid. F. F. Gundrum, Sacramento.
21 Pregnancy Toxemias—Their Etiology and Treatment. J. J. Hogan, San Francisco.
22 Inflamed Eye—Comments on Its Diagnosis. G. H. Kress, Los Angeles.
23 Operative Procedures of Ocular Muscles in Heterophorias. E. W. Alexander, San Francisco.
24 Conservative Management of Handicapped Gynecologic Patient (Anoci-Association). T. O. Burger, San Diego.
25 Ehrlich's Aldehyd Test for Urobilinogen. A. H. Robertson, Boston.
26 Etiology and Treatment of Superfluous Hair. G. D. Culver, San Francisco.
27 *Treatment for Typhoid. H. A. Collings, Winters.
28 Ureteral Defect Repaired with Loop of Intestine. Report of Case. J. H. Barbat, San Francisco.
29 Tubercular Peritonitis. W. O. Henry, Los Angeles.
30 Compound Fracture of Both Femurs with Extensive Laceration of Soft Parts. T. W. Huntington, San Francisco, and A. Powell, Oakland.
31 Advent of Chinese Physicians into California. J. F. Gibbon, San Francisco.
32 Case of Acute Pancreatitis with Accompanying Pseudocyst. H. A. L. Ryfkogel and G. H. Taubles, San Francisco.

20. **Skin Test in Typhoid.**—In order to compare the skin reaction with the Widal test for agglutinins, all patients suffering from typhoid admitted to the Sacramento County Hospital during the past summer received a skin test at the same time the blood for Widal test was made. At first Gundrum used a suspension of dead bacilli, 100 million to 1 c.c., *obtained from one of the commercial houses.* One-tenth c.c. (0.1 c.c.) of this bacterin was injected intradermally usually leaving a wheal about 5 or 6 mm. in diameter. If a red maculopapule as large or larger than the original wheal appeared between six and forty-eight hours from the time of injection, he considered the test positive. Gundrum tried this suspension of dead bacilli on eleven patients, six typhoids with positive Widals and five non-typhoids. In no case did a satisfactory reaction develop. Then he substituted Gay's vaccine, a suspension of sensitized and ground up typhoid bacilli of greater bacterial density (750 million to 1 c.c.). On thirteen typhoid patients this suspension gave a distinct positive in ten. Ten also gave a positive Widal test, but not the same ten. Of nine malaria patients eight did not give a reaction. Of eight controls none reacted. Thus the suspension of sensitized ground bacilli introduced intradermally gave reactions in as many patients as agglutination was observed in the Widal test, while the ordinary suspension failed to produce a characteristic response.

27. **Treatment for Typhoid.**—Knowing the efficacy of the bacillus bulgaricus in colitis colica and the summer diarrheas of both infants and adults Collings began using it some time ago in the treatment of typhoid and the results are very encouraging. By thoroughly saturating the patient with the culture of bacillus bulgaricus Collings states that the normal alkaline state of the bowel is changed to an acid one and inhibits further growth of the ingested typhoid bacilli (if not killing them), thus reducing the severity of the attack in all its symptoms excepting the persistent headache, and avoids the (1) initial constipation with following diarrhea, (2) extreme prostration, (3) dangerous tympanites, and (4) delirium. The usual emaciation does not follow, for it is not necessary, after saturation, to keep them on a liquid diet; a small dose of castor oil promptly relieves any discomfort. The usual supporting remedies are required.

Illinois Medical Journal, Chicago

February, XXVII, No. 2, pp. 81-176

33 Social Economic Aspect of Tuberculosis. M. Sahud, Chicago.
34 Recent Advances in Diagnosis and Treatment of Pulmonary Tuberculosis. E. J. O'Neill, Chicago.
35 Prevailing Mistakes in Antituberculosis Movement. G. T. Palmer, Springfield.
36 Relation of Tubercular Infections to Gynecologic Affections. A. J. Butner, Harrisburg.
37 Immunity in Tuberculosis. W. H. Watterson, Waukegan.
38 Chicago Plan for Municipal Control of Tuberculosis. T. B. Sachs, Chicago.
39 Suppurative Glandular Tuberculosis Simulating Typhoid Terminating in Miliary Tuberculosis. H. J. Dooley, Chicago.
40 Spinal Anesthesia in Gynecology. H. J. Boldt, New York.
41 Spinal and Local Anesthesia Combined. L. H. Debayle, Lyon, Nicaragua.
42 Sacral Anesthesia. K. E. Schloessingk, Freiburg, Germany.
43 Operations for Laceration of Cervix Uteri. H. F. Lewis, Chicago.
44 Military Surgeon on Firing Line. P. J. H. Farrell, Chicago.
45 *Report of Research Demonstrating Infectious Nature of Cancer. H. W. Abelmann, Chicago.
46 *Diagnostic Worth of Laboratory Data in Gastric Cancer. F. Smithies, Chicago.
47 Early Diagnosis of Gastric Carcinoma. O. A. Ambrose, St. Louis.
48 Antispitting Signs and Control of Expectoration. A. Gehrmann, Chicago.
49 Metastatic Infections. J. A. Colteaux, Roberts.
50 Infection as Cause of Rheumatism, Endocarditis, Arthritis Deformans, Ulcer of Stomach and Cholecystitis. S. S. Fuller, Paxton.
51 Acute Infantile Otitis. E. E. Woodside, Marion.
52 Conservation of Hearing. E. E. Edmondson, Mt. Vernon.
53 Vincent's Angina. J. Z. Bergeron, Chicago.
54 Indigestion. E. O. Laughlin, Paris.
55 Colipyelitis. B. G. R. Williams, Paris.
56 Relation of Trauma to Appendicitis. C. Sherrick, Monmouth.
57 Intracapsular Cataract Operation. W. A. Fisher, Chicago.

45. **Research Demonstrating Infectious Nature of Cancer.**—His experience with cancer has forced Abelmann to look on "carcinoma" and "sarcoma" as different manifestations of the same disease and to regard cancer as truly an infectious disease as tuberculosis and syphilis. He says that there is a difference between cancer cell transplantation and cancer infection. (*a*) With the transplantation of a malignant tumor the cells simply continue their growth as a piece of the original tumor. With cancer infection, however, the specific microorganism is responsible for the development of cancer and here the infected animal's own tissue cell undergoes a malignant change. (*b*) In inoculating with the cancer germ any type of this disease is liable to develop.

Whereas with a transplanted cancer the same type of tumor will develop as has been transplanted. (*c*) In infected animals there is no telling where a tumor will develop. With transplanted cancer, however, a tumor will grow at the site at which the grafting was performed. (*d*) With cancer infection, animals will take the disease irrespective of species, whereas with cancer cell transplantation animals of the same or closely allied species have shown results. (*e*) With cancer infection usually metastatic tumors develop, whereas with cell transplantation secondary growths very rarely occur. (*f*) Time is a great and important factor with infection, as manifestations of the disease appear months and even years after inoculation (henceforth the impossibility of diagnosing cancer in its early stage in human beings). Whereas with transplanted cancer a tumor usually starts to grow as soon as it is grafted. Certain infected animals never developed cancerous tumors (carcinoma and sarcoma), but developed conditions that strongly suggest the probable similarity or possible identity of conditions found in human beings, namely, pernicious anemia and leukemia; others die from a condition simulating tuberculosis.

46. **Diagnostic Worth of Laboratory Data in Gastric Cancer.**—In 18 per cent. of 700 cases studied by Smithies the removed material or the vomitus was dark brown or coffee colored. Many extracts were cream colored, dark green, yellow or bright red. In cases in which coffee-colored contents were noted, there was in 96 per cent. a hopelessly extensive process. In 65 per cent. the vomitus of test-meal extracts were rancidly sour. Twelve-hour retention was demonstrated in 504, or 72 per cent. In but 54 per cent. was free hydrochloric acid absent. In nearly 46 per cent. free Hcl ranged from a trace to as high as 120. One out of every five patients had free Hcl between 20 and 50.

Total acidity ranged above 50 in about 20 per cent. and combined acid and acid salts were below 50 in nearly 90 per cent.

The average free hydrochloric acid estimation in 436 cases of inoperable gastric cancer was 7.46. The average total acidity was 28.3. The average combined acidity was

21.0. Lactic acid was present in 62 per cent. of this group. The average free Hcl in 65 cases of ulcerated primary cancer was 2.0. The average total acidity was 34.0. The average combined acidity was 31. Lactic acid was demonstrated in 63 per cent. of this class. The average free hydrochloric acid estimation in 119 cases of gastric ulcers that had undergone malignant change was 33.4. It ranged from 4 to as high as 120. The average total acidity was 51.0. The average combined acid was 16.0. Lactic acid was present in but 23 per cent., or in approximately one case out of five. In the primary cancer group, lactic or other organic acid was demonstrated in 54 per cent. of the gastric extracts. In the group of cancers seemingly following a chronic gastric ulcer, lactic acid was present in 42 per cent. More than 65 per cent. of cases showing lactic acid revealed free Hcl absent, and in 75 per cent. the demonstration of lactic acid was associated with interference with the stomach's emptying power. Tests for occult or altered blood by the benzidin or the guaiac methods, were positive in 72 per cent. of the total test-meals of the series. The glycyltryptophan test was positive in 40 per cent. In 141 cases of cancer, or 65.1 per cent., the Wolff test was positive; in 29 cases (13.4 per cent.), the test was suspicious. Gastric extracts from 15 cases of ulcus carcinomatosum were tested. In 11 instances (73.3 per cent.), the test was positive; 3, or 20 per cent., were suspiciously positive.

Journal of Cutaneous Diseases, New York

February, XXXIII, No. 2, pp. 73-160

58 Cellular Elements of Blood in Three Hundred Cases of Various Skin Diseases. M. F. Engman and R. H. Davis, St. Louis.
59 Biochemical Properties of Chrysarobin. J. F. Schamberg, G. W. Raiziss and J. A. Kolmer, Philadelphia.
60 Instance of Asymmetric Raynaud's Disease. D. W. Montgomery and G. D. Culver, San Francisco.
61 *Purpura Annularis Telangiectodes. G. M. MacKee, New York.

61. Abstracted in The Journal, June 3, 1914, p. 1920.

Journal of Experimental Medicine, Lancaster, Pa.

February, XXI, No. 2, pp. 103-191

62 *Reactions Between Bacteria and Animal Tissues Under Conditions of Artificial Cultivation. H. F. Smyth, Philadelphia.
63 Varieties of Pneumococcus and Their Relation to Lobar Pneumonia. A. R. Dochez and O. T. Avery, New York.
64 Types of Pneumococci in Tuberculous Sputum. H. W. Lyall, New York.
65 *Mode of Action of Substances Inhibiting Tumor Growth and Immunization Against These Substances. M. S. Fleisher and L. Loeb, St. Louis.
66 **Comparison of Autoplastic and Homeoplastic Transplantation of* Thyroid Tissue in Guinea-Pig. C. Hesselberg, St. Louis.
67 Subcutaneous Absorption and Quantitative Estimation of Cholesterol. H. J. Corper, Chicago.
68 Resistance of Pups to Late Chloroform Poisoning in Its Relation to Liver Glycogen. E. A. Graham, Chicago.

62. **Reactions Between Bacteria and Animal Tissues.**—Smyth gives an outline of the results of observations on over 1,100 tissue cultures. The reaction of bacteria to tissue cultures would seem to be more or less parallel to the pathogenicity of the organism for the animal supplying the tissue. This method promises a reliable means of differentiation between some pathogenic and non-pathogenic organisms of the same species. It will probably shed more light on the protective action of tissue cells and cell products against bacterial action, as is seen with splenic cultures. It will probably explain more clearly the action of pathogenic bacteria and the definite relation they bear to the tissues involved and to the blood plasma, as is seen from the peculiar behavior of *Bacterium diphtheriticum* in tissue cultures.

65. **Action of Substances Inhibiting Tumor Growth.**—The authors' later investigations confirm their previous results. They claim that it is possible to increase markedly the effect of substances inhibiting tumor growth by using certain combinations of these substances which, when given alone, have some effect on tumor growth. Immunity acquired against the effect of these substances depends partly on an active immunization of the tumor cells themselves against the action of these substances, and this immunity is transmitted to the following generations of tumor cells. The immunity against the substances inhibiting tumor growth is, so far as Fleisher and Loeb have investigated the problem, specific. Their later experiments provide a more secure basis for the additional and more general conclusions mentioned tentatively in a previous paper.

66. **Transplantation of Thyroid Tissue in Guinea-Pig.**—Summarized briefly the principal result of Hesselberg's experiment was, that for a short period of time after operation no difference is seen in the behavior of the thyroid after autotransplantation and homeotransplantation. Very soon, however, a destruction of follicles begins to take place in the homeografts. This destruction is not caused by a direct primary disintegration or solution of follicles, but depends on the destructive activity of (1) the lymphocytes, and (2) of the connective tissue of the host tissue. The former invade the follicles and destroy them directly; the latter grows into the homeografts in larger quantity than into the autografts. In the former it soon becomes fibrous and hyaline; in the latter it remains cellular. The fibrous connective tissue surrounds and compresses and thus destroys the follicles. In some homeografts, destruction by means of lymphocytes, in others by connective tissue, preponderates. The rapidity with which the destruction takes place in different homeotransplants also varies. A much better blood vessel supply develops in the autografts than in the homeograft.

Journal of Infectious Diseases, Chicago

January, XVI, No. 1, pp. 1-108

69 Typhoid in Rockford, Ill. P. Hansen and H. N. Parker, Urbana.
70 *Effect of Quinin on Rabies. C. Krumwiede, Jr., and A. G. Mann, New York.
71 *Relative Virulence of Sensitized and Non-Sensitized Typhoid Bacili. R. L. Cecil, New York.
72 Classification of Bacillus Welchii Group of Bacteria. J. P. Simonds, Chicago.
73 Effect of Symbiosis on Spore Formation by Bacillus Welchii with Special Reference to Presence of These Spores in Stools. J. P. Simonds, Chicago.
74 *Action of Sodium Sulphocyanate in Tuberculosis. H. J. Corper, Chicago.
75 *Sodium Tellurite as Rapid Test for Viability of Tubercle Bacilli. H. J. Corper, Chicago.
76 Inoculation Experiment with Pure Culture of Spirocheta Hyos. W. E. King and R. H. Drake, Detroit.
77 *Effect of Quinin in Rabies. V. H. Moon, Chicago.
78 Specific Precipitin in Blood of Persons Injected with Antidiphtheric Horse Serum. C. W. Wells, Chicago.
79 *Fecal Flora of Typhoid and Its Reaction to Various Diets. J. C. Torrey, New York.

70. **Effect of Quinin on Rabies.**—Of four dogs treated with quinin, one showed a prolonged period of incubation and another showed a remission in the course of the disease, in either case, however, not beyond variations in the natural course of the disease. The fact that these variations occurred in the two of four dogs receiving the largest amounts of quinin Krumwiede and Mann regard as being probably only a coincidence. No influence was observed on the period of incubation in rabbits.

71. **Virulence of Sensitized and Non-Sensitized Typhoid Bacilli.**—According to Cecil his experimental work showed that sensitized, living typhoid bacilli, when injected intravenously in rabbits and guinea-pigs, are less virulent than non-sensitized, living typhoid bacilli. Sensitized typhoid bacilli, killed by heat, are in a similar way less virulent than non-sensitized, killed typhoid bacilli. The most probable explanation in Cecil's opinion for this difference is that sensitized typhoid bacilli undergo phagocytosis and bacteriolysis more rapidly than the non-sensitized bacilli.

74. **Sodium Sulphocyanate in Tuberculosis.**—Sodium sulphocyanate was found by Corper to be lethal to rabbits when given intravenously in amounts of 0.4 to 0.6 gm. per kilo. Delayed death may occur even from smaller amounts. When injected intravenously (about 0.4 gm. per kilo), it is found in the tuberculous tissues in concentration about equal to that in the blood (0.06 to 0.08 per cent.). The concentration in the lungs, heart, kidneys, and testes is not far from that in the blood, the concentration in the liver is less, while it is practically absent from the muscles. It disappears

from the tissues (normal and tuberculous) as speedily as it does from the blood (being absent about five days after injection). No evidence of a chemical affinity of the sodium sulphocyanate for any of the normal or tuberculous tissues was obtained. Tubercle bacilli, exposed to concentrations of sodium sulphocyanate up to 1 per cent. for forty-eight hours at 37 C. and up to 0.1 per cent. for seven days at 37 C., were not killed. No evidence even of attenuation was observed.

75. **Tellurite Test for Viability of Tubercle Bacilli.**—As a result of an attempt to use the Gosio vital reaction (sodium tellurite) as an index of life of virulent human tubercle bacilli in bactericidal experiments in connection with chemotherapeutic work; Corper found that it was not an available general reagent for this purpose, at least by the methods tested. Nevertheless, by its use a simple, rapid test was developed for determining the viability of cultures of tubercle bacilli, of value especially in eliminating such loss of time as may be occasioned by working with dead instead of viable cultures. A small lump of the culture to be tested is placed in the cup of a sterile, hollow glass slide and one or two small drops of sterile 0.2 per cent. sodium tellurite in distilled water are added; it is covered with a sterile glass cover slip bordered with sterile vaselin, and placed in the incubator at 37 C. Life of the organism is indicated by the blackening of the lump of culture, which occurs in from thirty minutes to two hours. Sodium tellurite is lethal to rabbits when it is given intravenously in amounts of about 0.8 mg. per kilo. It does not kill the tubercle bacillus even when in 0.01 per cent. concentration in salt solution or glycerol broth for forty-eight hours at 37 C., nor does it inhibit the growth in 0.001 per cent. concentration on glycerol agar.

77. **Effect of Quinin in Rabies.**—Quinin failed to be regularly effective as a cure or preventive of rabies in the animals used by Moon in his experiments. Quinin, given in the latter stages of hydrophobia in two human cases, produced no significant results. Quinin appeared to retard somewhat the development of street rabies if given in large doses during the incubation period. The results indicated that the organism, which causes rabies, is influenced in some degree by quinin. This Moon regards as being significant as showing that the organism is susceptible to therapeutic measures, and gives reason to hope that some drug may be found which will be of value in the treatment of hydrophobia.

79. **Diet and Fecal Flora in Typhoid.**—In a series of typhoid cases, studied by Torrey, the intestinal flora as revealed by examinations of the stools soon after the admission of the patients to the hospital was not uniform or specific in type, but exhibited variations that might be observed in a series of supposedly normal individuals. Apparently, the character of the intestinal flora is not a factor concerned in the determination of susceptibility to typhoidal infection. On a diet consisting of a daily average of from 50 to 100 gm. of protein, from 75 to 100 gm. of fat, and from 250 to 300 gm. of carbohydrate, including lactose, the intestinal flora tended to become simplified in regard to the variety of bacterial types observed in direct Gram-stained smears from the feces and in cultures and to become converted into a fermentative type in which the dominant organism was *Bacillus acidophilus*. The degree of this transformation was dependent largely on the type of flora which was present at the onset of the disease. When the flora showed a definite putrefactive tendency, the change did not extend farther than the elimination of the obligate putrefactive organisms and a moderate development of the aciduric types; while, with a more favorable initial flora, the change was of so radical a type that the stools finally resembled those of the first few years of normal infancy in the dominance of *B. acidophilus* and even in the presence of *B. bifidus*. Such a flora is not an obligate fermentative one and under the conditions of feeding is not capable of forming indol. Observations on a few patients given a purely milk diet indicated that this food alone does not bring about this transformation of the intestinal flora to such a degree as that which may follow a more liberal carbohydrate feeding. Patients exhibiting an initial fermentative flora of the aciduric type adapted themselves more readily to the high calory diet of Coleman, as shown especially by a comparative freedom of distention, than did patients with floras of putrefactive tendencies; in such patients, the diseases showed a marked tendency to run a mild course. The typhoid bacillus was isolated from the stools of these patients on a high calory diet less frequently than has been reported for other series of cases in which the feeding was less liberal.

Journal-Lancet, Minneapolis

February 1, XXXV, No. 3, pp. 53-79

80 *Neuroplasty of Median and Ulnar Nerves. R. E. Weible, Fargo, N. Dak.
81 Work of European War Surgeon. O. A. Oredson, Duluth.

80. **Neuroplasty of Median and Ulnar Nerves.**—The inner side of the whole upper right arm of Weible's patient was ground out by the rapidly moving knives of a mowing-machine. The portion destroyed included muscle, artery and vein, the internal cutaneous nerve, and the median and ulnar nerves. The musculospiral nerve escaped because of its depth. Four or five days later Weible saw him. Any attempt to use the arm resulted in extension of the hand on the wrist with the fingers in a flaccid, partly closed position—the "main en griffe." Sensation was gone over most of the forearm and hand. While there was some difficulty in finding the nerves, due to the dense cicatricial tissues, the neuromatous ends were eventually discovered, and the nerves freed. Nearly 13 cm. of the median and ulnar nerves were missing.

To perform the neuroplasty it was found necessary to split both the proximal and the distal portions of each nerve to secure enough flap material to bridge the gaps. This splitting extended near to, but not into, the neuromas; and at this point careful examination was made to see that the nerve fibers showed distinctly clear to the end of the incision in the nerve. The neuromas were not removed; but between each two a tension suture was placed. With a few sutures the median nerve was buried in the biceps muscle, and the ulnar in the triceps. The wound was closed without drainage.

In three weeks the patient was complaining of tingling and burning sensations in the forearm and hand. The first sensation to return came in the little finger, in the outer half of the ring finger, and the ulnar side of the hand; and motion followed in the same order. Motion came next to the middle finger, and finally to the index finger and thumb. Four years after operation the little, ring and middle fingers functionate in a perfect manner. The short flexors of the index finger and thumb are normal, while the long flexors are just beginning to act. The muscles of the arm have developed wonderfully well, and the hypothenar eminence and the ulnar side of the hand are as round as ever they were. The ulnar nerve is completely restored; the median, nearly so. The only branches of the latter that are not fully developed are the anterior interosseous nerve and the muscular branch in the hand. The tactile sense is still incomplete. He uses his hand well, and for the past year has handled a team of horses from his seat on a livery carriage.

Journal of Nervous and Mental Disease, Lancaster, Pa.

January, XLII, No. 1, pp. 1-64

82 *Spinal Decompression in Meningomyelitis. A. S. Taylor, J. W. Stephenson, New York.
83 Pathology of Tabetic Ocular Palsy; Relation of Syphilis to So-Called Parasyphilitic Diseases. W. G. Spiller, Philadelphia.
84 Case of Probable Encephalitis Due to Inhalation of Fumes of Gasoline. C. S. Potts, Philadelphia.
85 *Diagnostic Value of Hallucinations: Based on Study of Five Hundred Cases of Mental Disease. A. W. Stearns, Boston.

82. **Spinal Decompression in Meningomyelitis.**—It is held by Taylor and Stephenson that selected cases of meningomyelitis are susceptible to surgical treatment, in which the findings indicate the segmental level. This treatment should consist in laminectomy, free opening of the dura, and, probably, incision into the posterior columns of the cord, espe-

cially in those cases showing marked infiltration and swelling of the cord. This operation, properly performed, adds very little to the jeopardy of the patient, but, on the contrary, seems to greatly diminish the period of convalescence and to lead to a more nearly normal return of function in the cord than is usual in these cases when treated expectantly. Many surgeons have demonstrated that laminectomy is not a very dangerous operation. Decompression probably acts favorably by causing freer circulation, with the more rapid absorption of the inflammatory exudate. Incision of the cord probably facilitates drainage. The small risk inherent in laminectomy, and the great advantage likely to accrue to the patient, argue much in favor of the surgical treatment of these cases. The same facts also argue for the earlier employment of exploratory laminectomy in most spinal cases in which the diagnosis is not perfectly clear, but cases in which the symptoms point to some cord level as the seat of trouble.

85. **Diagnostic Value of Hallucinations.**—Of the 31 cases of alcoholic hallucinosis studied by Stearns, 100 per cent. were hallucinated, 97 with auditory, 4 with visual and 13 with other types. Examination of the delirium tremens group showed that 100 per cent. of the 14 cases were hallucinated, 78 auditory, 85 visual and 14 other types. Of 105 cases of dementia praecox 70 per cent. were hallucinated, 68 auditory, 21 visual and 10 other types. Of the 31 cases not showing hallucinations, 11, though the patients denied such presence, showed some evidence of their existence, 3 were catatonic and did not speak, 6 could not be examined because of violence or language difficulty, and in only 11 cases, or 10 per cent., could it be fairly said that they were absent. Of two brain-tumor cases one patient thought he heard the voice of a friend calling and this may have been an illusion. Of five toxic cases, two patients had indefinite hallucinations which were not unusual. Of three epileptics who had hallucinations, one had the visual, one the tactile, and one the gustatory type. Twenty-seven per cent. of the unclassified cases were hallucinated. Twenty-five per cent. of the general paralytics were hallucinated, 24 of the auditory and 11 of the visual type. No two of these were alike, and in but two cases were hallucinations a prominent symptom. In only one out of four cases of cerebral syphilis was there a history of hallucinations and this one was rather definite. In Korsakow's disease, 27 per cent. admitted hallucinations, these usually occurring in a delirious onset. In the manic-depressive group, but 18 per cent., were hallucinated. Thirteen per cent. of these were auditory and 9 visual and in 54 cases but 10 patients had hallucinations. In none of these were they a prominent symptom and in many there is reason to doubt their existence. Seven of these 10 were manic and 3 depressed.

The following conclusions are drawn by Stearns from this work: 1. The presence of hallucinations is indispensable for the diagnosis of alcoholic hallucinosis or delirium tremens, but the type of hallucinations is not a proper criterion for differentiation between these diseases. 2. The frequency of hallucinations in dementia praecox and their rarity in manic-depressive insanity has a bearing on differential diagnosis (provided that psychopathic hospital criteria are sound for these two diseases). 3. There are some grounds for doubting the existence of true hallucinations in manic-depressive insanity. 4. Hallucinations seem to be rare in sane persons, even though they be psychopaths.

Kentucky Medical Journal, Bowling Green

February 1, XIII, No. 3, pp. 85-136

86 *Treatment of Most Frequent Deformities Following Infantile Paralysis. W. B. Owen, Louisville.
87 *Diagnosis of Paralysis in Childhood. J. J. Moren, Louisville.
88 Methods of Early Diagnosis of Pulmonary Tuberculosis. B. K. Menifee, Walton.
89 Childhood Infection, Adult Death. O. E. Senour, Union.
90 Radium in Surgery and Dermatology. M. L. Ravitch, Louisville.
91 *Periodic Examination of Supposedly Well Persons. E. L. Fisk, New York.
92 Rural Hygiene and Sanitary Privy. C. W. Shaw, Alexandria.
93 Drink Plenty of Water. J. J. Moren, Louisville.
94 Present Status of Vesical Tumors with Reference to Fulguration. G. H. Day, Louisville.
95 Typhoid. T. C. Nichols, Morgan.
96 Some Points to Remember in Making Examinations and Diagnosis of Diseases of Chest. B. A. Caudle, Hopkinsville.

86 and 87. Abstracted in The Journal, Oct. 24, 1914, p. 1501.

91. Abstracted in The Journal, Oct. 17, 1914, p. 1417.

Maine Medical Association Journal, Portland

December, V, No. 5, pp. 161-196

97 Sterilization of Unfit. H. M. Swift, Portland.
98 Mueller-Walle Method of Lip-Reading for Adult Deaf. M. J. Worcester, Portland.

Medical Record, New York

February 13, LXXXVII, No. 7, pp. 253-294

99 *Intoxication Impulse. A. Lambert, New York.
100 What First Aid in Railway Surgery Does Not Mean; and What It Actually Does Mean. D. McCaskey, Witmer, Pa.
101 *New Remedial Agent and Its Effects in Pulmonary Tuberculosis. B. H. Waters, New York.
102 Blood Pressure Variations, With Some Reference to Treatment. W. Martin, Atlantic City, N. J.
103 Case of Gumma of Lower Eyelid. A. J. Gilmour, New York.

99. **Intoxication Impulse.**—The last four years have forced on Lambert the belief that the majority of periodic drinkers who are endeavoring hopelessly to cease their periodic sprees are really cases of chronic tobacco poisoning. This is seen more frequently among the incessant cigarette smokers than among those who usually smoke a pipe or cigars. It is seen most commonly among those who always inhale their tobacco smoke. Drugs are absorbed by the tracheal mucous membrane as quickly as by subcutaneous injections. The effect of the pyridin and collidin, and other substances contained in tobacco smoke, is quickly felt by those who inhale. The ease with which cigarettes can be smoked, the universality of the habit, and the accepted permission that a cigarette can be smoked often in cases in which a pipe or a cigar cannot, add to the frequency of the cigarette indulgence. Tobacco at first is used to soothe the nerves, and is taken for its soothing effect. In the early stages it slightly quickens the circulation and thus increases cerebral action. It, therefore, helps in mental rapidity in the early stages of moderate indulgence. Soon it is the accepted panacea for any worry or disturbance of the equilibrium of daily life. Then it is soon necessary to have a certain number of cigarettes that a certain amount of the narcotic may be absorbed to smooth out the daily existence. In this stage of tobacco poisoning the lotos eating contentment and mental inertia are evident and further over-indulgence brings on a nervousness which, in the beginning, a very little more indulgence in tobacco will allay. Soon, however, the more tobacco that is smoked and the more that is inhaled, the greater is the nervousness. It has then ceased to produce its narcotic effect and is producing its chronic poisoning. The individual therefore turns to something that he knows will have a narcotic effect and quiet his over-wrought nerves. This he knows alcohol will do, and in these individuals the first drink of alcohol leaves them not sober and starts in them its narcotic craving which drives them on to the full expression of their spree. As they sober up they cease for a few days both smoking and drinking, and as soon as they are over the spree they begin to smoke again and the vicious cycle is sooner or later completed. Lambert is firmly convinced that this double narcotic poisoning explains the majority of the periodic drinkers of to-day. If these patients are made to cease their smoking their drinking ceases automatically. It is the expression of an uncontrollable poisoning.

101. **New Remedial Agent and Its Effect in Pulmonary Tuberculosis.**—Waters claims that when the vapor of pinene is exposed to a current of ozonized air, prepared by the action on dry air of a high tension electric discharge, an addition occurs between the pinene and oxygen, resulting in the production of a dense white vapor. To this substance he has given the name oxypinene. It is chemically a pinene monozonide, occurs also as a diozonide and other multiples of the oxygen atom, and readily dissociates into its active principles, peroxid of hydrogen and pinonic acid, aldehyd

and ketone. Waters says that it possesses the valuable therapeutic properties of pinene without its irritating effects on the kidneys and urinary tract. Applied to the skin and mucous membranes it acts as a mild stimulant, markedly differing in this respect from the powerfully irritating oil of turpentine. The vapor is respirable for hours at a time, and its use may be continued indefinitely day after day without producing symptoms of renal irritation. It is antiseptic and bactericidal when applied to cutaneous and mucous surfaces. Bacteriologic experiments have been repeated many times, in the same manner, with uniform results, and from them it seems that oxypinene is a germicidal gas, of high efficiency, which is at once respirable and easily produced, continuously, in large quantities.

New Jersey Medical Society Journal, Orange

February, XII, No. 2, pp. 53-104

104 Treatment of Impacted Ureteral Calculi. G. N. J. Sommer, Trenton.
105 Prudential's Ordinary Mortality Experience from Pulmonary Tuberculosis. W. P. Watson, Jersey City.
106 Glandular Tuberculosis. H. W. Brown, Jersey City.
107 Spinal Anesthecinesia. Report of Three Hundred Cases. M. W. Reddan, Trenton.
108 Diagnostic Advances in Pulmonary Tuberculosis. C. V. R. Bumsted, Newark.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

January, XX, No. 1, pp. 1-60

109 Treatment of Articular Rheumatism. W. N. Berkeley, New York.
110 Two Reasons for Therapeutic Nihilism. S. W. Dickinson, Marion.
111 Hysteric Paralysis. B. R. Tucker, Richmond.
112 Uncinariasis. A. A. Marsteller, Richmond.

South Carolina Medical Association Journal, Anderson

January, XI, No. 1, pp. 1-34

113 Case of Cesarean Section. J. Lunney, Darlington.
114 Successful (Antitoxin) Treatment of Case of Tetanus. C. B. Epps, Sumter.
115 Membranous Lesions of Throat. E. F. Parker, Charleston.
116 Evils of Equivalent Certificate as an Entrance Requirement to Medical Colleges. A. M. Brailsford, Mullins.
117 Crossen's Method of Precluding Possibility of Unintentionally Leaving Gauze in Abdominal Cavity. L. Peters, Columbia.
118 Some Experiences on Private Duty. E. Evans, Sumter.
119 Report of Interesting Case. T. M. DuBose, Jr., Columbia.
120 Obstructions of Nose and Throat. T. C. Quickel, Gastonia, N. C.

Southern Medical Journal, Mobile

February, VIII, No. 2, pp. 85-166

121 Antiplague Measures—With Special Reference to New Orleans Campaign. R. Blue, Washington, D. C.
122 *Early Diagnosis of Pulmonary Tuberculosis—Essential Factor in Prevention and Cure. C. H. Cocke, Asheville, N. C.
123 *Significance of Von Pirquet Test. T. Frazer, Asheville, N. C.
124 *State Policy in Management of Tuberculosis. W. S. Rankin, Raleigh, N. C.
125 *Federal Government and Our Tuberculosis Problem. G. M. Cooper, Clinton, N. C.
126 Tuberculosis Sanatoria in South. J. J. Lloyd, Catawba Sanatorium, Va.
127 *Pleural Effusions of Artificial Pneumothorax. M. E. Lapham, Highlands, N. C.
128 *Etiology and Treatment of Pellagra. B. W. Page, Lumberton, N. C.
129 *New Complement Binding Reaction in Syphilis. S. T. Harris, Atlanta, Ga.
130 Emetin Hydrochlorid in Treatment of Entamebiasis and Other Affections. R. Lyons, New Orleans.
131 Medical Inspection of Rural Schools—Methods, Results, Possibilities. R. K. Flannagan, Richmond, Va.
132 Observations and Suggestions Relative to Municipal Sanitation. W. H. Rowan, Jackson, Miss.
133 Some Experimental Work on Circulation of Testicle. H. B. Gessner, New Orleans.
134 Tetany Following Parathyroidectomy; Report of Case Following Partial Thyroidectomy. G. B. Johnston and S. W. Budd, Richmond, Va.
135 Safeguarding in Prostatectomy. S. Leigh, Norfolk, Va.
136 Spontaneous Rupture Lateral Sinus with General Septicemia in Ulcerating Sinusitis. E. H. Cary, Dallas, Tex.
137 Relation of Pathologic Conditions in Otorhinology to General Medicine and Surgery. J. A. Stucky, Lexington, Ky.

122, 123 and 124. Abstracted in The Journal, Dec. 5, 1914, p. 2068.

125 and 127. Abstracted in The Journal, Dec. 5, 1914, p. 2068.

128. Also published in *Medical Record*, Jan. 2, 1915, and abstracted in The Journal, February 6, p. 541, abstract No. 72.

129. **New Complement-Binding Reaction in Syphilis.**—The serum of a patient who was unquestionably clinically syphilitic, and who later responded perfectly therapeutically, was heated by Harris to 71 to 72 C. (159.8 to 161.6 F.) for twenty minutes; 5 drops of this serum, as well as that of others similarly treated, were used as antigens. With this change the technic of Noguchi was followed. It was found that the serum of syphilitics with antibody eliminated by heat acted as antigen and gave complement binding with the serum of other syphilitics. Serums which had given antibody reactions were in turn found to act as a finder for antigen in other serums which had been heated to 71 to 72 C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

January, II, No. 7, pp. 351-516

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1. **Treatment of Malignant Disease by Radium Irradiation.**—The effect of exposing malignant cells to radium irradiation, according to Morson, is as follows: 1. Rapid degeneration of the malignant cells in the immediate vicinity of the tube of radium. 2. Apparent vacuolation and enlargement of nuclei of those cells beyond the degeneration zone. 3. Loss of the reproductive function of the cancer cell. About the third day after treatment the connective-tissue cells commence to proliferate. This action of radium on the connective-tissue cells shows a similarity to the attempt of nature to arrest the growth of cancer through new formation of fibrous tissue. If an excessive quantity of radium or too prolonged an exposure be given, not only necrosis of the whole tumor results, but the normal tissues slough also. Owing to the sensitiveness to irradiation of the endothelium which lines blood vessels, thrombosis is liable to occur. The vascular supply of the malignant tumor may thus be interfered with.

The microscopic changes which have been described can only be detected when the malignant cells are exposed to the rays in the body. The author has made experiments with a view to finding out whether by irradiating tumors outside the body it is possible to detect similar changes. Portions of growth suspended in the patient's blood immediately on removal have been submitted to irradiation for twenty-four hours at body temperature. No differences in microscopic appearance were observed between these and the controls, which were kept under similar condition but non-irradiated. When a malignant tumor has apparently disappeared after radium treatment, a thickening of the tissues, due to proliferation of the connective-tissue cells, is found to have taken place. If the treatment has been successfully carried out, no active inflammatory changes are detectable. In the normal tissue there is a marked increase in sensitiveness to irradiation when radium is applied a second time. Pigmentation of the skin and telangiectases are common sequelae of radium irradiation. No evidence has yet been brought forward to show that diminution in size takes place in visceral, skin or bone metastases after removal of the primary growth by radium treatment. In a few cases, however, a decrease in the size of the gland metastases has been observed.

3. **Ossification in Sarcoma of Bone.**—Three cases of endosteal sarcoma in which ossific changes took place are cited by Knaggs and Gruner. The new bone formation was independent of the periosteum. The active element in the process appeared to be the sarcoma cell. It is around this cell that the calcareous particles were deposited, sometimes in well-marked granules, sometimes as a haze in which the particles were too small to be recognized, but eventually thickening into non-laminated trabeculae of irregular shape. The process did not seem to be preceded by a tendency to necrobiosis—the explanation of ordinary calcareous degeneration—for in cases in which ossification was proceeding rapidly there was usually a very marked increase in the connective-tissue development, and the nuclei showed well, and the vascularity was marked. Often also there were signs of a tendency to definite arrangement which the authors believe justifies the use of the term ossification rather than that of calcification, and which is opposed to the idea of death. On the other hand, the cells showed a tendency to shrink, or, in the case of the giant cells, to lose their numerous nuclei after inclusion or as the calcification process began. Just as in a chondrosarcoma, when ossification begins, the lime salts are deposited in the matrix in the immediate vicinity of a cell, so in these cases the calcareous particles are laid down in the intercellular substance. Not only was the bone formation independent of the periosteum; in all three cases it occurred chiefly within the limits of endosteal bone formation.

4. **Treatment of Urethral Stricture by Excision.**—In all cases of stricture that are not easily managed by dilatation, excision of the stricture is advised by Russell. In all cases of stricture that are easily managed by dilatation, no further operation is advised; nevertheless, even for patients in this category who may desire to be rid of even a moderate stricture, the operation, in his opinion, offers a safe and efficient remedy. This operation should entirely supersede both internal and external urethrotomy as now performed.

6. **Tibiocalcaneal Resection with Amputation of Remainder of Foot.**—A method of amputation at the ankle-joint which leaves the heel intact produced excellent results in the seven cases operated on by Watson, and, in his opinion, has provided more serviceable stumps than could have been obtained by Syme's or Pirogoff's amputations. The main principles of the operation are to leave the original walking-surface of the heel intact, and to preserve the malleoli; to amputate the foot in front of the os calcis, together with the astragalus; to remove the cartilaginous surfaces of the lower ends of the tibia and fibula and of the upper surface of the os calcis; and then to wedge the os calcis between the malleoli, and pin it there with an excision pin driven through the heel (to be removed in about a fortnight).

The following advantages are claimed for the method: 1. The patient walks on the original heel-pad, which has been accustomed to carry weight and to bear pressure. 2. A club-shaped stump is secured by not removing the malleoli, which gives a firm hold to the "uppers" of an ordinary boot. 3. The shortening of the limb is reduced to a minimum (about an inch on the average). 4. No expensive artificial apparatus is necessary. An ordinary boot can be worn (a great advantage for hospital patients) if the sole is stiffened with a sheet of metal and a block provided for the toes. 5. Owing to the original heel-pad being left intact, weight can be borne on the stump at an early date without risk of pain or undue pressure. The method may be employed in lieu of Chopart's amputation (when this operation is possible) without the risk of backward tilting of the os calcis from contraction of the tendo Achillis. Less skin is required for the dorsal flap than in Chopart's amputation, and the stump is no less serviceable for walking.

10. **Ununited Fractures Treated by Long-Axial Drilling of Fractured Bone-Ends.**—The operation emphasized by Wildey consists in thoroughly exposing and cleaning the ends of the fragments at the seat of the fracture, refreshing them by removing the thinnest possible transverse section of bone that will ensure a complete removal of all dense fibrous tissue, and drilling, in the long axis of the shaft, several channels in the indurated bone-ends; the effect of this maneuver is the production of an artificial porosity of the osseous tissue. The drill is made to penetrate to healthy bone; at the same time the medullary cavity, which may be found occluded, is made patent by longitudinal perforations. Apposition and immobility of the fragments are secured by plates or other mechanical means. This method, which has been employed in many cases of long-standing non-union, has not failed to produce an abundant callus. Gratifying results have been obtained in cases in which a previous and unsuccessful operation had so shortened the limb that any further removal of the indurated bone must have left functional disability.

12. **Treatment of Acute Emphysematous Gangrene.**—Attention is directed by Lawson and Whitehouse to a new method of treatment of emphysematous gangrene. Half an hour before operation the patient receives a hypodermic injection of 1/100 gr. of atropin sulphate and ¼ gr. of morphin tartrate. General anesthesia as a rule is employed; but if the patient is profoundly septic, and the wound involves the lower extremity, spinal anesthesia is preferred. A point is then selected three or four fingers' breadth above the line of advancing gangrene, as shown by the dusky copper-colored tint of the integument. An incision about ¼ inch in length is made through the skin and subcutaneous tissues as far as the fascial sheath of the muscles. A pair of sinus forceps is then introduced into the wound, and the whole of the subcutaneous tissue opened up as widely as possible. The nozzle of an ordinary Higginson's syringe is introduced into the incision, and neutral hydrogen peroxid (10 volts) at body temperature is pumped into the subcutaneous spaces under pressure. The dissemination of oxygen is aided by kneading and massage. It is essential that the belt of oxygen be complete above the line of advancing gangrene, and therefore it is usually necessary to repeat the procedure at various points. This done, the gangrenous area itself is treated in a similar manner by puncture and infiltration. Finally, the wound is thoroughly explored and cleansed. All foreign material, dead and contused tissue is removed, and the cavity irrigated with normal saline (in order to wash away débris and clot), and then freely with hydrogen peroxid. Drainage by rubber tube and gauze is established, and the whole limb dressed with dry gauze and wool. Although much drainage may be anticipated, the authors consider it a mistake to employ huge quantities of wool and gauze in these cases. The aim should be to allow free access of air, coupled with efficient protection to the wounded tissues.

Journal of Tropical Medicine and Hygiene, London

January 15, XVIII, No. 2, pp. 13-24

13 Wild Game and Human Trypanosomiasis; Nomenclature of Certain Pan-African Trypanosomes. H. L. Duke.

Lancet, London

January 30, I, No. 4770, pp. 217-264

14 *Telephone Attachment in Surgery. J. M. Davidson.
15 Splenectomy for Enlarged Spleens with Anemia. G. Barling.
16 *Study of Basis of Abderhalden's Serum Reaction. W. E. Bullock.
17 Electrotherapy at Base Hospital. W. J. Turrell.
18 Fear and Disease. E. T. Jensen.

14. **Telephone Attachment in Surgery.**—Davidson advocates the adoption of a telephone, preferably with double receivers, connected together by means of a steel or elastic band, so that each ear has its separate receiver. This not only increases the intensity of the sound, but also serves to cut off extraneous sounds which might interfere with the audibleness of the telephone. Should the surgeon wish to have one ear uncovered so as to be able to attend to the remarks of anyone near him, it is quite a simple matter to move aside one of the

receivers. This double arrangement, however, is not essential, and a single telephone gives quite good results if the surgeon's hearing is acute. The carbon plate is placed on the patient's moistened skin, and plaster or bandage may be used for holding it in position tightly against the skin. The other end of the telephone should have attached to it a bare wire, of silver preferably, which has been disinfected by boiling or otherwise as the surgeon may direct. One end of this wire being attached to the telephone terminal, which, of course, cannot be disinfected readily, the other end need be handled only by the surgeon or his assistant with the usual antiseptic precautions, and the wire can either be wound round any instrument it is desired to use, or a spring clip may be employed by means of which the wire can be conveniently brought into connection with the knife, probe, needle or forceps, as the case may be.

Under these conditions, if the instrument is introduced into the body it will on first contact with any metal give rise to an unmistakable click carried through the telephone, and then, if it be gently moved or slightly disturbed so as to make a rubbing contact with the foreign body, an equally unmistakable loud rattle will be elicited. By such means the metal can be dissected out (if the knife is used) or otherwise freed from the encircling tissues, because a constant control can be exercised over the foreign body by reason of the microphonic rattle it produces when the instrument comes into contact with it. In cases in which a foreign body has been carefully localized by means of Roentgen rays, a needle can be attached to the telephone in the manner stated, run down on to the foreign body, and, when the characteristic sound is heard, can be maintained in its position as a guide before any incision is made. The telephone attachment to forceps is particularly useful, because these can be used as a probe, and when the foreign body is between the jaws a characteristic sound is evoked.

16. **Abderhalden's Serum Reaction.**—The chief object of Bullock's work was to test the reliability of the reaction as applied to the diagnosis of cancer. It was found impossible to cause the production in rabbits of a ferment which digests coagulated egg albumin by the injection subcutaneously, intraperitoneally, or intravenously of raw egg albumin. A minute quantity of amino-acids is present in 10 c.c. of blood serum of rabbits and dogs, and it was found (in rabbits) that after a bleeding these substances are increased in amount. An autolytic ferment is found in the blood serum of rabbits, of dogs and in human serum. The serum of the pregnant rabbit is unable to break down rabbit placenta, and the serum of the pregnant bitch is unable to break down dog placenta. Human blood serum from the pregnant female and from healthy male, incubated with human placenta, produced by chemical or physical action amino-acids.

Rat blood serum ("normal" and "tumor") breaks down rat tumor. Guinea-pig serum ("normal" and "tumor") breaks down guinea-pig tumor and mouse tumor. The blood serum of the guinea pig was not rendered more active in this property by a previous inoculation of the animal with mouse tumor. Bullock asserts, therefore, that the method devised by Abderhalden is inadequate to distinguish normal from pregnant or cancerous serum. The fundamental experiments adduced by Abderhalden do not, on repetition, give the results stated by him, and a proteolytic ferment normally present in the serum of mammals acting on tissue substrates of varying lability, prepared in accordance with his directions, in all probability accounts for his results and their confirmation by others.

Archives des Maladies du Cœur, etc., Paris

September, VII, No. 9, pp. 561-592

19 *Pernicious Anemia in a Roentgenologist. C. Aubertin.
20 Infectious Origin of Congenital Malformations of the Heart and Large Vessels. G. Clarac.
21 Iron Content of the Viscera. (La sidérose viscérale.) C. Aubertin.

October, No. 10, pp. 593-624

22 *Femoral Vein Pulse in Heart Disease. (Pouls veineux fémoral d'origine auriculaire dans 3 cas de maladie du cœur droit.) C. Pezzi and U. Gasperini.

November, No. 11, pp. 625-656

23 *Paroxysmal Tachycardia. E. Donzelot.

December, No. 12, pp. 657-688

24 *Radiotherapy in Severe Anemia. H. Vaquez and C. Aubertin.

19. **Pernicious Anemia in Roentgenologist.**—Aubertin has previously pointed out that in the blood of persons having much to do with radiant energy the leukocytes are frequently much modified, the numbers extremely low, with hypopolynucleosis and eosinophilia. The reds never seemed to suffer in the cases examined, but an exception to this rule has been afforded by the tragic fate of Dr. Tiraboschi who has recently succumbed to progressive pernicious anemia. The blood-producing organs were found the seat of important changes, especially the spleen which was in pronounced atrophy. He had been in charge of the Roentgen department of the Bergamo hospital in Italy for fourteen years, and at one time had a Roentgen dermatitis which soon healed without ulcerating. His two sons are healthy. The atrophy of the spleen and the content in iron-containing pigment were beyond anything Aubertin has ever encountered. These findings resembled those in animals after repeated intensive Roentgen exposures, and suggest that the Roentgen rays are liable to induce a special pernicious anemia in certain cases.

22. **Pulsation in the Femoral Vein.**—In the three cases related there were disturbances in the right heart, and the pulsation in the femoral vein was of auricular origin. In two of the cases there was also a presystolic pulsation in the liver. This abnormal femoral venous pulse could be detected by careful palpation, and this revealed the presence of the heart disease and aided in localizing it when clinical and roentgenoscopic examination was negative.

23. **Paroxysmal Tachycardia.**—Donzelot classes paroxysmal tachycardia as the regular, total type; the partial type, sometimes called auricular flutter; and the irregular type, that is, with attacks of complete arhythmia. In the first type the tachycardia comes on suddenly, in the midst of apparent health, with a sensation of shock in the chest, and the delirious heart action ceases as abruptly as it began. In the intervals between the attacks the individual seems to be in the best of health. When these attacks are few and far between the heart does not seem to suffer, but if they grow longer and more frequent, the myocardium gets worn out and serious mischief results. The different types may blend into each other or be superposed, and it is not unusual to see the progression through the three types to a fatal conclusion. No mention is made of treatment. (See abstract 43 in these columns Feb. 6, 1915, p. 546.)

24. **Roentgen Treatment of Severe Anemia.**—In large doses, the Roentgen rays have a destructive action on the bone marrow, but in small doses they merely stimulate it to better functioning. This at least is what Vaquez and Aubertin conclude from the favorable results of Roentgen exposures in a case of severe anemia probably the result of long, mild carbon monoxid poisoning. The reds numbered 750,000, the whites 4,800, hemoglobin 15 per cent. and the man of 41 was too weak to be up and about. Marked improvement followed a course of very mild Roentgen exposures. In a girl of 14 with febrile anemia, seven Roentgen exposures in the course of a month produced a marked improvement, the patient keeping comparatively well for a year; then the anemia returned and proved fatal in spite of a renewed radiotherapy and other measures. Some other cases are cited, all demonstrating that benefit may be expected when the blood marrow is still capable of responding to the stimulation. When it has degenerated beyond this, nothing can be hoped from the treatment. The outlook can be determined by examining the blood repeatedly during the course of exposures. If the numbers of nucleated cells increase, improvement may be counted on, but if the number of nucleated cells does not vary, the prognosis is grave. The radiotherapy seems to act in the same way as arsenic. In cases of mild anemia other measures seems to deserve the preference, although Grego has reported excellent results in two cases of neurasthenia with chloro-anemia given 2.5 H units at three-day intervals for three weeks. Similar benefit was

realized in a case of anemia from excessive loss of blood. With these small doses the reds and hemoglobin percentage increased without any drop in the number of whites. Vaquez and Aubertin applied the rays with the same technic as for myeloid leukemia, especially to the knees, shoulders and elbows, and occasionally, the sternum. The rays are filtered through 2 or 4 mm. of aluminum. In one case the first dose was too large (18 H units scattered over the different epiphyses of the long bones), and the immediate result was a temporary aggravation of the anemia.

Archives de Médecine des Enfants, Paris

September, XVII, No. 9, pp. 641-720

25 *Diphtheria Bacilli Carriers. (Quelques documents relatifs à l'étude des porteurs de germes diphthériques.) J. Renault and P. P. Lévy.
26 *Urea Content of Cerebrospinal Fluid and the Ash in the Stools with "Atrophy of Infants." (Azotémie et cendres des matières fécales chez les athrepsiques.) Nobécourt and C. Bidot.
27 *Treatment of Inguinal Hernia in Children. A. Nota.
28 Exophthalmic Goiter in Girl of Seven. G. Railliet.
29 Nitrogenous Bodies in Blood of Children. (L'azotémie chez les enfants. J. Comby.

25. **Diphtheria Bacilli Carriers.**—Renault and Lévy made weekly smears from the throats during two months in a school connected with a hospital and in two hospital wards. A total of 784 smears were made, including some from the relatives of 44 of the children who had recently had diphtheria. They give charts showing the percentage of carriers. The constant arrival of new inmates for the school and wards made the findings very variable, but the number of carriers invariably showed a marked increase when a child entered who had recently passed through diphtheria or one developed it in the school or ward. The closer neighbors of the diphtheria case nearly always had diphtheria bacilli in their throats. The facts observed led to the adoption of the following rules, and long experience, they say, testifies to their being rational and safe: 1. In the family, when a case of diphtheria develops, and medical surveillance and hygiene can be counted on, no preventive injection of antitoxin is made, except to infants in arms. When it is doubtful if surveillance and hygiene can be enforced, all the members of the family are given a prophylactic injection. 2. In schools and asylums, medical supervision and strict hygiene are not always attainable, and consequently the children should be closely watched if a case of diphtheria develops. If a second case appears, then every one must be given the preventive injection. 3. In the hospital, as the supervision here is perfect, there is no need for preventive antitoxin unless an epidemic threatens. This is rendered probable when two cases of diphtheria develop close together. Very young children and those with measles should always be given a preventive injection even if only one case develops in their ward.

26. **Metabolic Findings in Atrophy of Infants.**—The metabolic findings in five extremely debilitated infants are tabulated, showing that such infants are uremic, and that the azotemia increases as the cachexia becomes more pronounced, and subsides as health returns. The azotemia was estimated by the urea content of the cerebrospinal fluid.

27. **Inguinal Hernia.**—Nota's method of treating inguinal hernia in children is by introducing a deep crescent cut out of a sheet of paraffin. It was described in these columns, Sept. 12, 1914, p. 980.

Archives Mens. d'Obst. et de Gynéc., Paris

August, III, No. 8, pp. 49-96. Last indexed Sept. 12, p. 975

30 *Cesarean Section after Rupture of Fetal Membranes. (Cesariennes tardives.) E. Zarate.
31 Antigonococcus Vaccine and Serotherapy in Gynecology and Obstetrics. E. Gaujoux.

30. **Tardy Cesarean Section.**—Zarate describes from his experience at Buenos Aires four cases in which the classic cesarean section was applied as an emergency measure four, twelve and sixty-two hours after the fetal membranes had ruptured. The outcome was excellent for both mother and child in each case. The uterus was drawn out through a long median abdominal incision, the lips of which were held together with forceps behind the uterus, the abdomen protected with compresses. A sheet was then drawn over the uterus and the assistant kept this smooth and fitted down to the curve of the uterus even when the organ retracted after incision and evacuation. The interior of the uterus was thus protected, as also the tissues of the uterus wall against contact with the amniotic fluid. The membranes and placenta were removed with dry sponges. Then the interior of the uterus and the lips of the incision were swabbed out with a mixture of equal parts alcohol and tincture of iodin if the cervix was dilated. If not, he tamponed the cavity with medicated gauze, pushing a strip down toward the vagina. Then the protecting sheet was discarded and the uterus sutured. A little morphin was given four hours later to keep the viscera tranquil.

Archiv für Kinderheilkunde, Stuttgart

LXIV, Nos. 1-2, pp. 1-160. Last indexed Nov. 28, 1914, p. 1987

32 *The Declining Birth-Rate in Mecklenburg-Schwerin. (Der Geburtsruckgang.) P. Herzberg.
33 Eight Years of the Children's Ward in Rostock Hospital. A. Kosmowski.
34 Lymphoblastic Sarcoma in Boy of Three. (Zur Casuistik der malignen Abdominaltumoren des frühen Kindesalters.) J. Duken.
35 Congenital Atresia of Esophagus with Fistula into Trachea. G. Schmidgall.

32. **The Declining Birth-Rate.**—Herzberg quotes Moltke's saying that the declining birth-rate in France is equivalent to the French losing a battle every day, but he adds that Germany nowadays is not far behind France in this respect. In 1876 the birth-rate in Germany was 42.6 while in 1911 it was only 29.5. The rate is even less than this in the Mecklenburg province, having declined from 46.14 in 1810 to 25.7 in 1912. Herzberg proposes an internal colonization as the remedy, providing ways and means so that young men from the cities or rural districts might be aided to set up a farm and a household for themselves instead of swelling the ranks of the periodically unemployed.

Deutsche Zeitschrift für Chirurgie, Leipzig

December, CXXXII, Nos. 3-4, pp. 209-380

36 Hemorrhoids Result of Pressure at Defecation. S. Szuman.
37 Experimental Study of Cholelithiasis. T. Aoyama.
38 Lymphatic Leukemia. (Lymphatische Leukämie, mit bes. Berücksichtigung ihrer grosszelligen Form.) H. Nakamura.
39 Cysts in the Kidneys of Child of Three. (Die solitären Cystennieren.) G. Zaccarini.
40 Experimental Study of Traumatic Pressure Action at an Explosion. F. Rusca.

Münchener medizinische Wochenschrift, Munich

January 12, LXII, No. 2, pp. 41-72

41 *Calcium Chlorid in Treatment of Hay-Fever. (Weitere Mitteilungen uber erfolgreiche Behandlungen des Heufiebers.) R. Emmerich and O. Loew.
42 The Subcutaneous Tuberculin Reaction in Diagnosis. (Wert und Technik der subkutanen Tuberkulindiagnose.) C. Kraemer. Commenced in No. 1.
43 Gas Phlegmons in War. E. Payr.
44 Suture of Nerves. (Zur Frage der Nervennaht.) W. Spielmeyer. Concluded in No. 3.
45 Pathologic Anatomic Findings at the Base Hospitals. (Beobachtungen aus Reservelazaretten.) J. G. Mönckeberg.
46 Danger of Tropical Diseases Appearing in Europe during the War. (Moglichkeit des Auftretens exotischer Krankheiten während des Krieges.) M. Mayer.
47 Dressing Fractures for Transportation. (Ueber Transportverbande bei Schussfrakturen.) Schlossmann.
48 *Biology of Body Lice and Means to Avoid Them. (Biologie und Bekampfung der Kleiderlaus.) S. v. Prowazek.
49 Hygiene in the Camps of Prisoners. (Hygienische Erfahrungen bei Kriegsgefangenen.) G. Seiffert. Commenced in No. 1.

41. **Calcium Chlorid in Treatment of Hay-Fever.**—This communication states that the use of calcium chlorid in treatment of hay-fever is based on the physiologic action of the drug, and hence it is rational and effectual. Hay-fever patients cured by it in 1913 had no return of their malady in 1914 but seem to be permanently cured. Others had their hay-fever very much attenuated, almost to a complete cure, and in the following season it appeared only in the attenuated

form. The cell nucleus in glands, muscles, ganglion cells and leukocytes requires calcium for its proper functioning. The utilization of food is more complete when calcium is being taken; this is evidently due to an increased production of enzymes, and this production of enzymes is a function of the cell nucleus. Other consequences of the intake of calcium are increased phagocytosis, strengthening of the constitution, and enhanced resisting powers to various morbid influences. The calcium salts reduce, further, the overexcitability of the nerves which leads to sneezing, etc.

Emmerich and Loew have always impressed on hay-fever patients that vegetables and fruit are of much greater moment for the mineral supply than meat or starchy foods or bread. Vegetables and fruit also contain the salts of organic acids, especially potassium salts, which in the body become oxidized and aid in maintaining the alkalinity of the blood; this in turn aids in the retention of calcium. A number of new cases are related including the case of a man of 41 who for years had had severe hay-fever from the middle of May to July, sometimes sneezing forty times in succession. He began in March to take the chlorid and for the first time in fifteen years had a summer free from hay-fever. The formula calls for 100 gm. crystallized calcium chlorid in half a liter of distilled water. Three teaspoonfuls of this are taken during the day, always with the meals. This dosage is no more than one gets in a pint of milk, and it seems to be entirely harmless. Loew has taken this dose daily for six or seven years without harm. Jacobi and Wolff-Eisner experimented with calcium salts to learn their action on the kidneys, but their experiments with very large amounts and on diseased kidneys have no bearing on the therapeutic use of the above small doses of calcium chlorid. Jacobi emphasizes this in particular, saying that he has witnessed very brilliant results from the latter. Wolff-Eisner remarks that the calcium probably has an inhibiting action only on morbid kidneys, as he could find no influence of the kind in his two cases with sound kidneys.

48. **Vermin.**—Prowazek has been experimenting with various substances to keep lice away and states that the ethereal oils are effectual for this while they do not soil the clothes nor expose to danger of fire. Oil of anise and oil of fennel were the most effectual in his tests, and he recommends inunction of the mixture of 30 parts pure oil of anise and 70 parts 96 per cent. alcohol. He cites Leuwenhoeck that the body louse has about 5,000 offspring in the course of two months. The nits hatch out in three or four days and are sexually mature in about eighteen days. Nits on the clothes can be destroyed by sulphur or steam, or by placing in an air-tight vessel in which benzin has been sprinkled.

Wiener klinische Wochenschrift, Vienna

January 14, XXVIII, No. 2, pp. 29-56

50 Colon Bacillus Vaccine in Treatment of Various Acute Infectious Diseases. (Bakteriotherapie akuter Infektionskrankheiten: Heterobakteriotherapie.) R. Kraus.
51 Principles for Treatment of Wounds of the Thigh. (Behandlung der Schussfrakturen des Oberschenkels.) E. Suchanek.
52 Glycerin-Glue Mixture to Protect the Feet against Freezing. (Zur Prophylaxe und Therapie der Erfrierungen.) E. Pribram.
53 *Operative Treatment of Exophthalmic Goiter. (Kasuistisches zur Frage therapeutischer Misserfolge bei Morbus Basedowii.) H. v. Haberer. Commenced in No. 1.
54 Wounds of the Jaws. (Schussverletzungen der Kiefer und ihre Behandlung durch den Zahnarzt.) F. Steinschneider.

53. **Failures in Operative Treatment of Exophthalmic Goiter.**—The first installment of this article was reviewed last week. Here von Haberer gives further details of the case there described. He emphasizes that it was a typical example of status thymicus but with no suggestion of status lymphaticus; this confirms the assumption of the independence of the conditions. The case is chiefly instructive on account of the evidence it presents of the important part played by the thymus in the Basedow syndrome. This was the only fatal case among the twenty-three in which he has resected the thymus for exophthalmic goiter, and it is the only one in which he left a large proportion of the gland unmolested as it proved to be so much larger than he had supposed. The action of the thymus is shown by this case and others resembling it to be a toxic action on the heart. The extremely high temperature seems to be a special feature of the postoperative thymus trouble. In future, if delirium cordis sets in after an operation for exophthalmic goiter, he intends to expose the thymus and resect still more of it. In conclusion he reports a case of unfavorable results from operative treatment of exophthalmic goiter after a course of ten Roentgen exposures had been given beforehand. The symptoms had not been benefited in the least while the operation later was rendered much more tedious and difficult by the modification of the tissues under the Roentgen rays. The thymus had evidently not been reached by the rays. To waste time on Roentgen treatment is therefore futile and dangerous.

Zeitschrift für klinische Medizin, Berlin

LXXXI, Nos. 1-2, pp. 1-198. Last indexed Dec. 12, 1914, p. 2169

55 Comparative Tests for Sugar in the Blood. (Vergleichende Blutzuckerbestimmungen durch Polarisation und Reduktionsmethoden.) C. Maase and H. Tachau.
56 Apparent Inhibition of Clotting in Blood from Tuberculous Lungs. (Ueber Ungerinnbarkeit des Blutes bei der Hämoptoe der Phthisiker.) E. Magnus-Alsleben.
57 *Mechanism of Secretion of Urine in the Kidney. (Mechanismus der Harnabsonderung in der Niere.) E. Leschke.
58 The Capillary Pulse. E. Jürgensen.
59 *Drug Tests of Disturbance in Vegetative Nervous System. (Was leistet die pharmakologische Prüfung in der Diagnostik der Störungen im vegetativen Nervensystem?) G. Lehmann.
60 Pseudodysentery in Denmark. (Klinik und Epidemiologie der giftarmen Dysenteriebazilleninfektion in Dänemark.) C. Sonne.
61 Color Test for Uric Acid in the Urine. (Kolorimetrische Harnsäurebestimmungen im Harn.) H. F. Höst.
62 *The Status Lymphaticus and its Relation to Pluriglandular Disease. H. Pribram.
63 Physical-Chemical Processes in the Blood and Their Diagnostic Import. (Einige Versuchsresultate zum Verständnisse physikalischchemischer Vorgänge im Blute unter normalen und pathologischen Verhältnissen.) G. Holler.
64 Serum from Rabbits Treated with Diphtheria Toxin and Its Action on the Blood Pressure of Normal Rabbits. H. Zondek.
65 Influence of the Nervous System on the Pigment Content of the Skin. F. Nehl.

57. **Mechanism of Secretion of Urine.**—Leschke states that sodium ferrocyanid injected into animals, even in enormous amounts, is eliminated exclusively through the convoluted tubules in the kidneys, in which its presence can be unfailingly revealed by treating the kidney tissues with a silver nitrate solution and then with a photographic developer, as he describes in detail. The elimination of urea is shown up in a similar way by transforming it into a brown mercury salt, and this too is found only in the convoluted tubules. The phosphates and sodium chlorid also obey the same law. Even when extremely large doses are taken, no more of either is found in the glomeruli than corresponds to the low physiologic concentration in the blood serum. This histochemical technic thus demonstrates unerringly that the normal elements of the urine, the chlorids, phosphates, uric acid, purins, etc., are eliminated exclusively through the convoluted tubules. The glomeruli secrete only water in the physiologic solution, and never more than the physiologic proportions of the elements of the urine.

59. **Pharmacologic Tests of Disturbances in the Vegetative Nervous System.**—Lehmann made 700 tests on about 200 persons, injecting pilocarpin or epinephrin to study their action on the vagus and sympathetic systems. His findings did not confirm the statements of Eppinger and Hess in regard to antagonism between these nervous systems. He found that over 95 per cent. of those exceptionally susceptible to the action of epinephrin were likewise exceptionally susceptible to the action of pilocarpin, and vice versa. The young seem to be more sensitive than older persons. On the whole, the results of his research were disappointing. In many persons who manifested an intense reaction to the drugs, not a trace of any disturbance in the vegetative nervous system could be detected. On the other hand, certain patients presenting distinct vagus stigmata and reacting intensely to pilocarpin and treated with atropin on these indications, yet failed to show the slightest benefit from it. This corroborates the assumption that the disturbance is not in the vagus alone

but that the whole vegetative nervous system is deranged. Benefit was derived from the atropin in only a small proportion of the cases, but it was so promptly evident that there can be no question that it must be credited to the atropin.

The reactions to the three tests, with pilocarpin, with atropin, and with epinephrin are tabulated in 100 cases. The findings confirm anew that the reaction to the pharmacologic tests by no means parallels the clinical symptoms. They show further that the conception of "vagotony" is in need of revision, although it has thrown instructive light on the group of internal secretion disturbances and neuroses of organs. Extreme caution is necessary in estimating the significance of the reactions to the pharmacologic tests. In conclusion, Lehmann warns of the severe by-effects he occasionally encountered in persons given even a single dose of *epinephrin.* In 40 per cent. the temperature rose slightly, and in some persons there was pulsation in the carotids or epigastrium, extreme pallor, headache, vomiting and distress. The test injection was, to stimulate the vagus, 0.01 gm. pilocarpin; to paralyze the vagus, 0.001 gm. atropin; to stimulate the sympathetic, 0.001 or 0.00075 gm. epinephrin. The latter test was supplemented by 100 gm. grape sugar given three hours before the epinephrin. An interval of two days was allowed between the tests.

62. **Relations between Status Lymphaticus and Derangement in Internal Secretion.**—Pribram studied this question on 2,500 patients who have passed through his hands at Prague in the last few months. The only truly characteristic findings are follicles at the base of the tongue and the behavior of the epiglottis. Lymphocytosis is common and, especially with hypoplasia in the genital organs, eosinophilia and basophilia were frequent. The follicles at the base of the tongue were much enlarged in 80 per cent. of the 150 persons who presented signs of status lymphaticus. The epiglottis, on the other hand, was infantile or omega-shaped. In 30 per cent. the glands in the neck were enlarged, and in 33 per cent. there was a striking tendency to genu valga and brachia valga. Alimentary glycosuria was evident in 6 per cent. and lordotic albuminuria in 33 per cent. These various findings were often isolated, so that a typical combination of a number was extremely rare.

Mitteilungen a.·d. med. Fak. der Univ., Fukuoka, Japan

I, No. 1, pp. 1-252

66 *Traumatic Circumscribed Ossifying Myositis. S. Goto.
67 Snails as the Intermediate Hosts of Schistosoma. (Der Zwischenwirt des Schistosomum japonicum Katsurada.) K. Miyairi and M. Suzuki.
68 Organization of the Thrombus. T. Todyo.

66. **Ossifying Myositis.**—Goto reports five cases of traumatic circumscribed ossifying myositis and a number of experiments to reproduce it on rabbits, discussing the nature of the trouble and the best treatment. There seem to be three types: that in which the ossification proceeds from the periosteum, that in which it proceeds from the muscle tissue, and, thirdly, a combination of both. Treatment must vary with the type; the true periosteal ossification is merely a traumatic exostosis and as such is long in developing and no muscle fibers are found in it. The term "ossifying myositis" should be restricted to cases of muscular origin, although neither this nor the term "intramuscular osteoma" are strictly applicable, as there is no actual inflammation or tumor. The literature on the subject is discussed and also the points of difference between it and progressive multiple ossifying myositis. With the exostosis type, the functioning of the muscles is comparatively not much impaired. The shadow cast by the exostosis has clearer outlines than the shadow of a sarcoma, and the bone is harder to the touch.

In treatment of myositis, repose, application of heated air, hot baths and similar measures to promote the local circulation are beneficial, but too early massage is liable to injure further the tissues already demoralized by the trauma. Even cautious massage should not be attempted, Goto says, until the local hardness of the tissues is subsiding. The hardening generally starts in less than a week after the trauma. In prophylaxis, it might be wise to evacuate an intramuscular hematoma. Operative measures are not called for otherwise unless for persisting disturbances or when repeated Roentgen examination shows no signs of retrogression.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 2, LIX, I, No. 1, pp. 1-152

69 *Andreas Vesalius, 1514-1914. G. Van Rijnberk and E. C. Van Leersum.
70 The Church and Science in Vesalius' Day. L. Knappert.
71 Revolution in Anatomy Realized by Vesalius. (Vesalius als hervormer der ontleedkunde.) J. Boeke.
72 *Illustrations in Works on Anatomy before and during Vesalius' Day. G. Van Rijnberk.
73 *Portraits of Vesalius. J. G. de Lint.
74 *Relations Between the Anatomy of Vesalius and that of da Vinci. Verhouding van de ontleedkunde van Vesalius tot die van Leonardo da Vinci.) A. J. P. van den Broek.
75 *The Various Editions of Vesalius' Works and Commentaries Thereon. F. M. G. de Feyfer.
76 *Vesalius and Experimental Physiology. (Vesalius als proefondervindelijk physioloog.) G. Van Rijnberk.

69. **Vesalius.**—(The celebration of the fourth centenary of the "Luther of anatomy" has been world-wide, our exchanges from every land bringing tributes and mentioning historical exhibitions here and there in his honor. The one exception is the land that gave him birth, Belgium. The Journal's editorial tribute was published January 2, p. 57, and January 16, p. 248. Of the only two perfect vellum copies of Vesalius' "Epitome" said to be extant, one was preserved in the University of Louvain. The physicians with the German forces at Brussels held a meeting in Vesalius' honor on his anniversary.)

72. **Illustrations in Works on Anatomy Before and During Vesalius' Day.**—Van Rijnberk reproduces a number of quaint illustrations from the works of De Ketham, 1491; Da Carpi, 1522; Valverde, 1556, and Stephanus, 1545, comparing their works with those of Vesalius.

73. **Portraits of Vesalius.**—The portrait of Vesalius from his own "Fabrica" is given, as also the large picture showing him at work on a cadaver in a crowd of enthusiastic spectators. There is also a reproduction of the oil portrait in the Amsterdam medical-pharmaceutic museum and of the one in the Royal College of London.

74. **Vesalius and da Vinci.**—Jackschath was one of the latest to claim that not Vesalius but da Vinci must be regarded as the Father of anatomy. In an address before the German *Naturforscher* Congress a few years ago he accused Vesalius of plagiarizing from da Vinci. Van den Broek's testimony apparently refutes this, and while hailing da Vinci as the greatest figure in the renaissance of art, he shows that Vesalius began the new birth of anatomy. (Vesalius amassed means while professor of surgery and anatomy at Padua so that he was able to publish the results of his research in the handsome style they deserved, and thus spread his results before the world, while da Vinci's drawings showing his grasp of anatomy were locked up in a private portfolio for centuries. Vesalius published his great work before he had reached the age of 30.)

75. **Editions of Vesalius' Works.**—Forty-seven pages are devoted to this list of the various editions that have been published of Vesalius' work and of the principal commentaries thereon.

76. **Vesalius' Work in Experimental Physiology.**—Van Rijnberk remarks that Vesalius' fame as the father of modern anatomy has overshadowed his research on physiology, and yet he did considerable work in the line of experimental physiology. The concluding chapter in his great work on anatomy is devoted to the "anatomy of the living," in other words, vivisection. This entire chapter is translated from the Latin here, with its numerous illustrations. The functioning of the muscles, tendons and various organs are discussed in turn. Figure 1 shows his conception of the functioning of the muscles and tendons in maintaining the balance. His total equipment for post-mortem work, vivisection and experimental physiology is shown in Figure 2. The rings at the side of the board and staple and chain at the head are to fasten the animal on the movable board. Van Rijnberk admits that much in this chapter is evidently taken from

Galen, who also did good work in experimental physiology. Vesalius even reproduces, uncorrected, certain manifest blunders in Galen's work. Aside from this, the chapter shows Vesalius as a skilful experimenter, a sharp observer and an excellent leader of a demonstration of experimental physiology. His tests of the functioning of the recurrent nerves are most instructive as also his method for artificial respiration when the chest has been opened—a century and a half before Robert Hook to whom artificial respiration is generally credited. Vesalius further shows insight into the mutual relations between the respiration and the action of the heart. Among the other points he noticed is the lower position of the stomach after a meal. This chapter of Vesalius' work might well serve as an outline for a modern examination in physiology.

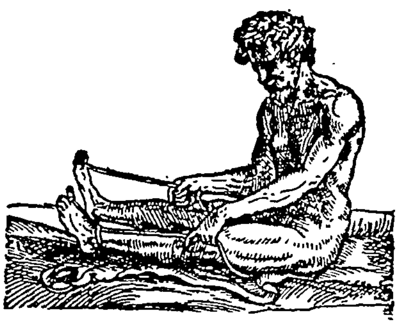

Fig. 1.—Demonstration of action of muscles and tendons.

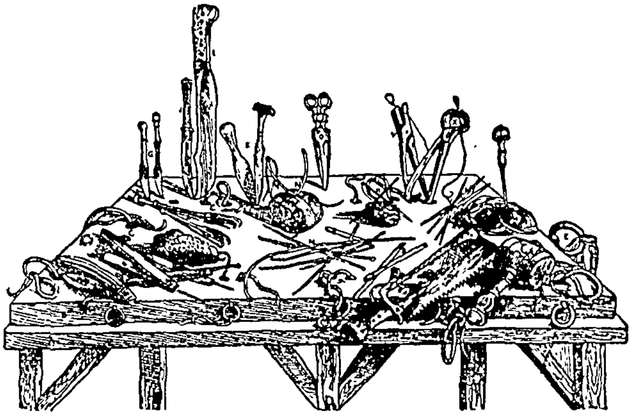

Fig. 2.—Vesalius' complete equipment for study of anatomy and experimental physiology.

Hospitalstidende, Copenhagen

January 20, LVIII, No. 3, pp. 57-80

77 *Frequency of Occurrence of Single Kidney. (Om Aplasia renis og venae cardinales resistentes.) K. Secher.

78 Progressive Symmetrical Dystrophy of Fat Tissue. (Et nyt Tilfælde af lipodystrofia progressiva.) V. Christiansen.

77. **Single Kidney.**—Secher describes the necropsy findings in a child without any left kidney or ureter, but the suprarenal gland on that side was unusually large. The genital organs were also asymmetrical. Since Ballowitz published in 1895 his compilation of 213 cases of single kidney, other cases have been reported, bringing the total to about 300. Secher remarks, however, that these figures are misleading as in many of the cases the distinction between total aplasia and atrophy of the kidney has not been made clear. The kidney was single in 7 of the 8,150 cadavers he has examined, that is, once in every 1,164 cases. According to the records, this occurs twice as often in males as in females, and it is the left kidney that is usually the missing one. The abdominal vessels and genital organs generally display more or less deformity in such cases. In the case reported in detail the heart was exceptionally large, which possibly may have some connection with the very large size of the left suprarenal.

Nordisches medizinisches Archiv, Stockholm

XLVIII, Internal Medicine, 1-2. Last indexed Feb. 13, p. 626

79 Methods for Experimental Testing of Digitalis Preparations. C. G. Santesson.

80 Diverticulum on Small Intestine. (Ein Divertikel der Pars descendens duodeni mittels Röntgenuntersuchung diagnostiziert und operativ entfernt.) G. Forssell and E. Key.

81 Comparative Study of the Wassermann and Hermann-Perutz Reactions in Syphilis. * (Recherches sur la modification apportée par Herman et Perutz à la réaction de précipitation au glycocholate de soude, spécialement au point de vue du diagnostic de la syphilis.) H. Bang and C. With.

82 Slight Influence from Thyroid Preparations on Growth of Puppies and Guinea-Pigs. (Einwirkung von Schilddrüsenpräparaten und Antithyreoidin auf das Wachstum bei jungen Hunden und bei Meerschweinchen.) I. Holmgren.

83 *Form of Idiocy with Deformity of Hands and Feet; Four Cases. (Akrocephalosyndaktyli.) B. Gadelius.

84 Action of Extracardiac Nerves on the Automatically Beating Ventricle. E. Zander.

85 Cardiogram of Right Auricle. (Et kardiogram från högra förmaket hos människa.) R. Friberger.

86 Mongoloid Idiocy in Sweden. E. O. Hultgren.

87 Pneumothorax in the Apparently Healthy. (Aetiologin vid pneumothorax hos kliniskt friska.) E. Lindhagen.

88 *Splenectomy; Four Successful Cases. G. Rystedt.

89 Experiences with Antigonococcus Vaccine. J. Reenstierna.

90 The Bacilli in the Blood, Lymph Glands and Joint Effusion in Rheumatic Affections. (Pleomorfa baciller i blod, lymfkörtlar och ledexsudat.) G. Forssner.

83. **Idiocy with Characteristic Deformity.**—Gadelius gives an illustrated description of his four cases of absolute idiocy with web fingers and toes and other deformities, cleft palate, exophthalmos, etc. He compares them with the one or two dozen similar cases on record. Apert encountered one and compiled eight further cases, and applied the term "acrocephalosyndactylia," which describes the more striking features.

88. **Splenomegaly.**—Rystedt removed the much enlarged spleen in a case of hemolytic jaundice, in two of Banti's disease, and in one case on account of cystic degeneration of the spleen. The results were excellent in each case. The patients were men of 25 and 27, a boy of 15 and a girl of 18.

Ugeskrift for Læger, Copenhagen

January 14, LXXVII, No. 2, pp. 51-78

91 *Thyroiditis. K. Nørregaard.

92 Aseptic Entero-Anastomosis. (Forslag angaaende en aseptisk Metode til Fremstilling af Anastomoser i Fordøjelseskanalen.) H. S. Biilmann.

91. **Disease in the Thyroid Gland.**—Nørregaard states that a tendency to goiter is frequently overlooked as it is much more common than generally supposed, especially in women. In a tuberculosis sanatorium Stein found among 1,283 tuberculous women 29 with exophthalmic goiter and 177 with simple goiter in the course of four years. Nørregaard reviews his own experience with 35 cases. One was in a boy; the rest were all women. A hereditary tendency to disease of the thyroid was marked in a number of his cases, the abnormal thyroid manifesting itself in different ways in various members of the family. These families are inclined to be nervous and restless and there were 14 insane or feebleminded in the family histories of his 35 cases. He says he does not know of any special study of the thyroid by an alienist, but he is convinced that systematic research of this kind among the insane and feeble-minded would bring to light a number of interesting facts.

His own experience has demonstrated a close connection between thyroiditis and tuberculosis and also between thyroiditis and cancer, especially cancer of the breast. Adenoid vegetations and tonsillitis are also unusually prevalent among persons with simple or exophthalmic goiter. Detailed analysis of his 35 cases suggests that the thyroiditis develops from some focus of infection elsewhere, most often in the tonsils. Comparative anatomy shows a direct communication between them in some animals, and Weglowski found traces of a communication in 30 per cent. of 153 cadavers examined, including fetuses and the elderly. Nørregaard cites J. H. Johnson's report of several cases of exophthalmic goiter in which a cure was realized by direct treatment of the lingual tonsils. He always makes a point of direct treatment of the throat in all cases of thyroid disease, supplementary to the thyroid treatment. The results have been good in many instances but of course it is impossible to tell how much of the benefit was due to the treatment of the tonsils or adenoids. The chief danger that threatens persons with disease of the thyroid is derangement of the heart or mind, and cancer, but one of his patients is now over 80.

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REORGANIZATION OF CLINICAL TEACHING

A COMPILATION OF REPORTS OF A SPECIAL COMMITTEE, PRESENTED BY THE CHAIRMAN [*]

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Recognizing the need of a thorough reorganization of clinical teaching in this country, a year ago a special committee of ten prominent physicians of the United States and Canada was appointed by the Council to prepare reports which would serve as a basis for a general discussion of the subject at this conference.

In order to facilitate the work, a meeting of the committee was held in Chicago, December 28, 1914, at which individual reports were made. After a thorough discussion, the bounds were fixed within which the members were asked to confine their treatment of the subject in written reports which were to be sent in. It must be understood that the following is a compilation from these reports and is not the final report of the committee. This compilation touches on many of the problems which should be given thorough discussion before any final recommendations are made. In the discussions at this conference, a special effort has been made to have all points of view represented, and these discussions will be of great assistance to the committee, which will make its final report later.

FROM THE INDIVIDUAL REPORTS

In considering the reorganization of clinical teaching in the medical schools of the United States, it is necessary to keep in mind that any standards suggested should be of sufficient rationality that they may be adopted by all the medical schools of the country which have sound reasons for existence. It is necessary to remember also the educational and financial status of the communities in which the various medical schools are situated. Certain standards may be set forth for adoption in the immediate future, while more advanced standards may be suggested to provide for evolutional improvements, to be adopted at certain fixed periods in the future—just as was done in 1905 with regard to admission requirements and full-time teachers in the laboratory departments.

In advising a standard of clinical organization, there are certain essentials which must be considered:

1. *Adequate Hospital and Dispensary Facilities.*—A properly equipped hospital is an essential part of the first-class medical school, which should have absolute control of the medical management and beds. A small hospital so controlled by the medical school has a much greater educational value than a large hospital in which clinical teaching is embarrassed by political or other disturbing factors.

A clinical class (seniors) of one hundred students or less should have a hospital of a minimum of two hundred beds. This minimum cannot well be lowered, because otherwise there will not be the essential variety of patients from which selections may be made. There should also be an outpatient department of at least ten thousand patients, or 50,000 visits annually.

With three main departments, the 200 bed hospital would afford 75 beds for general medicine, including neurology, pediatrics and dermatology; 75 beds for general surgery, including sub-departments of the eye, ear, nose and throat, genito-urinary diseases and orthopedics; and 50 beds for obstetrics, including normal infants and gynecology. This minimum bed hospital for one hundred students could, with advantage, be doubled or trebled for the same number of students by the schools which could financially afford it.

If the medical school cannot build and endow its own hospital, it should establish a relationship whereby some hospital already built and in operation may be attached to its teaching equipment. Such a hospital should be in close proximity to the medical school, and should possess the necessary auxiliary departments, to-wit: A clinical laboratory, a Roentgen-ray department, a bacteriologic laboratory, a laboratory for metabolic investigation (physiologic chemistry), and space for the instalment of apparatus for investigating cardiovascular diseases and the organs of special sense. The dispensary should include all the departments of medicine and surgery, general and special, and should be in intimate and harmonious connection with the wards in the hospital, to which may be referred patients whose diseases or injuries cannot be managed satisfactorily in an ambulant service. In each such hospital, or at least in the outpatient service, there should be a fully organized social-service department.

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[*] Read at the Eleventh Annual Conference of the Council on Medical Education of the American Medical Association, Chicago, Feb. 16, 1915. The discussion of this paper appears under Society Proceedings, this issue.

[*] The committee consists of Dr. Victor C. Vaughan, Chairman, President of the American Medical Association, Ann Arbor, Mich.
Dr. George E. Armstrong, Professor of Surgery and Clinical Surgery, McGill University, Faculty of Medicine, Montreal, Quebec.
Dr. Frank Billings, Professor of Medicine, Rush Medical College, Chicago.
Dr. John G. Clark, Professor of Gynecology, University of Pennsylvania, School of Medicine, Philadelphia, Pa.
Dr. Harvey Cushing, Professor of Surgery, Harvard University, Medical School, Boston, Mass.
Dr. George Dock, Professor of Medicine, Washington University, Medical School, St. Louis, Mo.
Dr. John M. T. Finney, Professor of Clinical Surgery, Johns Hopkins University, Medical Department, Baltimore, Md.
Dr. Samuel W. Lambert, Dean and Professor of Clinical Medicine, Columbia University, College of Physicians and Surgeons, New York City.
Dr. William J. Mayo, Rochester, Minn.
Dr. George E. de Schweinitz, Professor of Ophthalmology, University of Pennsylvania, School of Medicine, Philadelphia, Pa.

For adequate clinical teaching in obstetrics and gynecology, of the beds assigned for this purpose (preferably 100), two-thirds should be devoted to obstetrics and one-third to gynecology, either under one roof or in separate departments. In addition to this intramural hospital service, a dispensary in direct charge of the teaching staff should be equipped for instruction in the diagnosis and treatment of ambulatory conditions, which make up the routine work of the physician's office practice.

For teaching the specialties, such as ophthalmology, otology and rhinolaryngology, large ward accommodations are not so essential, since satisfactory instruction is easily accomplished in the outpatient departments of these specialties; some beds, or, better, small special wards, however, are necessary. For example, in ophthalmology, from twelve to fourteen beds should be provided, and an equal number should be provided for otologic and rhinolaryngologic patients. An adequate ophthalmic dispensary service, for classes of from 75 to 100 students, should command not less than from 1,500 to 2,000 new patients yearly, or approximately from 7,500 to 10,000 visits.

2. *The Necessity of Adequate Financial Income for Good Clinical Teaching.*—That each clinical department of a medical school should have an adequate endowment, or receive a fair proportion from the general budget, is obvious. Each must have sufficient provision for teachers, technicians and janitors, supplies, new apparatus and books. The latter may be available through a general library; but it should be possible for the clinical departments to get all books, charts, diagrams and other similar teaching material as promptly as possible. It is difficult to make a definite budget that can be immediately applied. Certain general principles seem clear. The head of the department should have an adequate salary, though not larger than that of the heads of other departments. More important than the salary of the heads seems the need of having adequate salaries for those next in rank, that will enable them to be independent of practice. Such salaries would range from $2,500 to $4,000 or $5,000. These men would then have positions somewhat like a German extraordinarius or primarius, except that instead of getting their income from students' fees and consultation cases, they would get it from the university. Even small schools should have one such man; larger schools would need two or three. They should be kept in the school as long as they are useful, but encouraged to migrate when they get good offers, so that they would rarely reach the maximum salary. Next to these men, there is need for from two to five or six well-trained men who could carry on clinical work including research, and teach. They also should have salaries that would permit them to be independent of practice, say, from $1,500 to $2,500. Below these would come residents and assistant residents, getting respectively from $500 to $1,000, or from $300 to $500 a year and their keep. There should be enough technicians to care for the laboratories and part of the laboratory work, such as preparing dyes and reagents, photographic work, section-cutting and other routine work. The budget should provide for an adequate stenographic force, for supplies and for new equipment. In developing satisfactory clinical staffs, it may be necessary to take young men and train them, beginning with small salaries, because men of desired experience (worth from $1,500 to $3,000 a year) are sometimes difficult to obtain.

As the full-time professorship plan is now on the proving ground, and, with one exception, there is to-day no medical school so financially situated as to institute the plan, a budget to provide for it would be prohibitive. For a medical college having a clinical class of two hundred students (one hundred juniors and one hundred seniors), the minimum clinical annual budget should be from $75,000 to $100,000.[1] This sum may be apportioned approximately as follows: To medicine and its subdivisions, from $30,000 to $40,000; to surgery and its subdepartments, from $30,000 to $40,000; and to obstetrics and gynecology, from $15,000 to $20,000; and this budget unit could be doubled when possible without extravagant expenditure. The total budget also will vary greatly, depending on locality and other conditions. The same amount of money, for example, would go much further in Ann Arbor than in New York City.

The organization for the clinical faculty for the school and hospital unit and the disposition of the budget may be illustrated:

1	Chief or Head of Department	$2,500	to	$5,000
1	Associate or Assistant Clinician in Hospital	1,250	to	2,500
1	Associate or Assistant Chief of Clinical Laboratory	1,250	to	2,500
1	Associate or Assistant Chief of Outdoor Department	1,250	to	2,500
1	Resident	600	to	1,200
4	Interns			
1	Associate or Assistant in charge of Research Lab.	1,250	to	2,500
1	Biochemist	2,000	to	2,800
33	Senior Clinical Clerks			
	Stenographers, artists, etc.	3,000	to	3,000
	Dermatology, Head and Assistants	2,500	to	5,000
	Pediatrics, Head and Assistants	2,500	to	5,000
	Neurology, Head and Assistants	2,500	to	5,000

The subdepartments would have the cooperative aid of the resident, the interns and those in charge of the outpatient, laboratory and research departments.

The organization and disposition of the budget of the surgical and obstetric departments would be practically the same in principle with differences in details.

3. *The Place in the Curriculum to Begin Prescribed Clinical Instruction.*—Most schools are still on a four-years' basis, though the tendency is in the direction of adding a fifth year for obligatory hospital experience. On the four-year basis, it has been found that two years are insufficient for the proper and effective presentation of the clinical branches, which have grown apace and have become increasingly difficult and complex. Much of this difficulty will doubtless be obviated, however, by a careful organization of the clinical departments. Again, two years' time is not too much for teaching anatomy, physiology, biochemistry, etc. A course in physical diagnosis on the normal individual, and perhaps a corresponding preparatory course in surgery, may well be placed in the final semester of the second year. This change seems advisable, since, with the technic acquired, the student may take up the clinical work in the third year with greater profit. It is also advisable because it serves to bridge the gap formerly existing in the student's mind between the preclinical and the clinical courses—a gap accentuated by the intervening long summer recess.

The student should begin clinical work in his second year with practical exercises in the study of physical signs and their relation to symptoms and to pathologic processes. This can be done best in class room and laboratory, on normal subjects or with patients from the outpatient dispensary service. The student should then take up a careful reading of complete text-books of medicine and surgery under personal weekly reviews with instructors, who should in conferences discover what progress the student is making in this work. In his third year, and coincidently with this theoretic study, he should continue his practical work in a dispensary and at the bedside, and should be given, in formal clinics and lectures, the most recent ideas as well as the long-established facts of the practice and theory of surgery and medicine. Instruction in obstetrics and gynecology should be finished in the third year with the exception of certain practical courses usually best given early in the fourth year. The courses in ophthalmology, otology and rhinolaryngology should begin and be finished in the third year, especially if a satisfactory departmental coordination of teaching can be established. In his fourth year the student should be prepared to follow and be a factor in the ward service of a teaching hospital.

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[1] This does not include cost of maintenance of hospital and dispensary.

If the arrangement for beginning clinical instruction in the sophomore year is adopted, graduates of some universities which offer the so-called combined medical course leading to an A.B. degree, and which give only the first two years of the medical course, will enter handicapped in so far as their preliminary course in physical diagnosis and the preparatory course in surgery are concerned, unless a certain amount of dispensary and hospital material may become available at those schools.

4. *Use of the Dispensary.*—An abundance of outpatient clinical material is one of the most valuable teaching assets of the medical college. Thus far, however, its value has not been appreciated, nor has the material been used to nearly so good a purpose as is possible. The dispensary material should be used for the instruction of undergraduates and for the clinical and other researches of the attending staff. It is best used for students in the second year for teaching physical diagnosis, and in the third and fourth years in internal medicine and in the medical specialties. Its greatest, and perhaps most neglected, use is to instruct third year students in the routine of history taking and fourth year students in the therapeutics of the lesser medical and surgical ailments. The dispensary service should be intimately connected with the ward service in every department. The obstetric material should be used in the third year for diagnostic purposes only, the practical care of the lying-in patients, both in the hospital and in private homes, being reserved for the fourth-year students. The gynecology dispensary material also is best used in the fourth year. For certain of the specialties, such as ophthalmology, otology and rhinolaryngology, outpatient clinical material is highly essential, and should be utilized for sections of from six to ten students, each section in charge of an instructor or demonstrator. The essentials in diseases of the eye, ear, nose and throat can be taught readily and with great thoroughness in the dispensary clinics.

5. *The Organization of the Hospital Units.*—In planning the construction of a hospital, the bed unit per ward should be considered. This bed unit depends on the number of beds to be assigned to each attending nurse. For acute cases four beds can be taken care of by one nurse; for more chronic cases six beds may be assigned to a single nurse. This makes 24 beds as a convenient ward unit; such a ward can be used either for chronic or acute cases. As many such units may be added as needed, varying with the size of the hospital. A service for a minimum-sized teaching hospital, one of approximately 200 (actually 192) beds can, therefore, be divided into eight such units of 24 beds each, four units (96 beds) each for the medical and surgical services. More satisfactory, however, would be a hospital of 300 (actually 288) beds, providing 150 (actually 144) beds each for the medical and surgical services. Each of these services could then be easily divided into three equal subdivisions of 48 beds each. Taking either the medical or the surgical service as an example, the personnel to direct and care for such a service would consist of the professor in charge, who should be the director of the service; three first assistants and six second assistants. One first assistant and two second assistants should be in charge of each third of the service. Under this staff, who do not live in the hospital, there should be a resident staff, to consist of resident physicians, at least three in number, who should serve with indefinite periods. These residents should be the direct overseers and instructors of the students on the clinical clerk service and also of the intern staff. There should be two interns to each service of 48 beds, serving for one year, in two grades of six months each—junior and senior. And, finally, there should be twenty-four or thirty clinical clerks, all fourth-year students, assigned to the service, eight or ten being designated to each subdivision. In addition, there might be voluntary assistants serving without pay, who would be doing special research work within the service both in the wards and in the laboratories, in which work the residents and also the first and second assistants could take part, although the regular staff should be especially concerned with the teaching of the students of the undergraduate school. The first and second assistants, in addition to their hospital work with the fourth-year men, should take care also of the third-year theoretic and practical instruction and of the second-year preliminary work; and at least one of the second assistants should have charge in the dispensary of the hospital and link that important organization to the ward service in the outpatient department. There should be extern assistants of sufficient number to take care of the ambulant patients.

The subtraction of one of these units from the above estimate would be no special hardship, but the addition of one or more, particularly of two units, would probably necessitate an entire duplication of a department in medicine and surgery, for it is doubtful if a single director should be asked to take charge of more than 150 beds. It would seem, therefore, that a partial duplication of the educational unit would entail an expense out of proportion to the educational results obtained.

The organization of special departments, such as that of ophthalmology, otology and rhinolaryngology, necessarily depends on the number of students enrolled, on the amount of money available for the departmental expenses and on the number of hours assigned to it in the curriculum. With classes of from seventy-five to one hundred students, there should be in each of these departments a professor, or head of the department, an assistant professor, and not less than three or four instructors. The instructors in the diseases of the eye, ear, nose and throat should have received a general hospital training in medicine and surgery, and should have devoted themselves to the diseases under consideration for a considerable period. Each should have had a full course, for example, in ophthalmology or otology, with at least one year's work in a clinic, in addition to the preparatory training in medicine and surgery. They should be in a sense regarded still as advanced students, a large part of whose compensation consists in the opportunities for higher education, and while they are training the students who are assigned to them for instruction in the outpatient work, they are training themselves for more advanced positions.

A serious deficiency in the majority of teaching hospitals is the wide separation of the departments of a given unit. The laboratories, research rooms, so far as an investigation applies directly to the living patient, the history rooms, working library, residents' rooms, auditorium, and, indeed, every part of a clinical unit which makes for efficiency should be housed under one roof. Cooperation between departments should be encouraged so far as it relates to the larger problems and principles of medicine, but each department should be so completely constructed and the working staff so well provided for, in direct touch with the wards, that every detail of investigation and treatment may be conducted without reference to any other department. As now constituted the ward of the average hospital transmits its material for routine investigation to large laboratories more or less remotely removed from the wards. Often a perfunctory report is returned from a laboratory assistant, who may know nothing of the clinical problem at stake—a report, therefore, frequently not worth the paper on which it is written. A hospital unit should constitute a complete workshop, self-sufficient for all clinical purposes, and independent of all other departments, and under the immediate care of the director and his assistants. The larger problems should be dealt with by departmental conference and close coordination, each clinical chief calling to his aid colleagues in other departments, who may, through their special knowledge, shed new light on questions impinging on his domain.

6. *The Utilization of Students as Clinical Clerks in Hospital Wards.*—The clinical clerk system is the best for training undergraduates in clinical branches, provided their work is properly supervised by a senior resident physician, an instructor, or a demonstrator. This work should be begun as soon as the student has the necessary theoretic and technical training, and experience shows that they may begin as clinical clerks not earlier than in the last trimester of the third year with the three main divisions of (*a*) medicine, including pediatrics, neurology and dermatology, (*b*) surgery and the surgical specialties and (*c*) obstetrics and gynecology, and complete a trimester in each. The undergraduate will finish his general training at the end of the second trimester of the fourth year, and may then go on to more elective work. The student in the ward system learns by doing, by applying the scientific and technical knowledge acquired in the first two years and by receiving further instruction through teachers of various ranks in wards, laboratories, operating-rooms, clinics, and library.

In the obstetric wards the utilization of clinical clerks is most important. The many examinations of secretions, the testing of blood pressure, the regulation of metabolism through clinical tests, the observation and care of the infant, the estimation of the value of the mother's milk, are all so important that clerks should be in constant attendance; indeed it is most desirable that they should be in residence. The assignment of the number of patients to each student must be regulated according to the ward census and the number of students in class. In the wards devoted to the specialties, on the contrary, such as ophthalmology, otology and rhinolaryngology, students as clinical clerks are of very little service. Most of the material in these departments is better used in ward class instruction.

Before serving as clerks, even in the wards devoted to medicine and surgery, the student should have a sufficient knowledge of the specialties to determine the most conspicuous departures from the normal. For example, they should be able to determine the acuteness of vision and the field of vision; to know the method of testing the pupil reflexes, the simpler methods of determining the absence or presence of diplopia and of determining the probable character of deafness.

The period of service as clinical clerks in each of the two chief divisions of internal medicine and surgery should be not less than two, and better, four months' duration. The teaching personnel should consist, in each department, of a directing officer and of instructors to attend to the subdivisions of the class in their theoretic and practical work. The equipment should include a hospital with a dispensary service, in addition to the necessary laboratories, class-rooms and library. The hospital must be large enough to supply a sufficient number of clinical beds so that at least five, six, or eight beds could be assigned to each student for at least one-third of the college year. This final course of instruction as clinical clerks should consist of placing each student in charge of his quota of beds and making him a part of the hospital service and placing on him the responsibility for accurate observation and careful records. A strict accountability from the students can be secured only by a resident supervisor who has direct contact with their work and with the wards.

The hospital necessary to provide for clinical clerks must be large enough to accommodate the students enrolled in the school with which it is connected, or, in other words, the number of students enrolled in any medical college should be limited according to the size of its teaching hospital. If six beds were assigned to each clinical clerk for an entire year, a medical service of 150 beds would be necessary to accommodate 25 students; whereas, the same number of beds would accommodate 30 students for the entire year if 5 beds were assigned to each. Since it is estimated that each student should devote one-third of his year to each of the three services, it follows that a school averaging from 75 to 100 students in its graduating class would require a hospital service of approximately 150 medical beds and approximately 150 surgical beds, with additional provision for obstetrics and gynecology. A service of 150 beds is as large as should be under the direction of a single professor of medicine or surgery. If this educational unit of, say 100 students, be increased, it would be difficult to properly train them unless the whole hospital unit in medicine and surgery and its teaching force was duplicated. It is apparent, therefore, that a class of more than 100 senior students would entail an expense out of proportion to the results obtained until that class is duplicated, or nearly so.

7. *Utilization of Special and Extramural Hospitals.*—A medical school with a minimum number of beds, an outpatient department and a minimum budget for two hundred students in the third- and fourth-year classes, could and should amplify the clinical instruc-

tion, without additional cost, by affiliation with extramural hospitals, and increase their teaching force by volunteer clinical teachers on the staffs of those hospitals. When such hospitals are not too far from the medical school, and when sufficient teachers are connected with them as a part of a working educational machine, they may be utilized to good effect. Too often the instruction given in these hospitals is of a desultory or superficial character and the student soon loses interest or finds his time so fully occupied by duties in the central institution that he ceases to attend the classes. Only by a very close interlocking system under the direct supervision of the dean of the medical school may such instruction be of value.

Almost every community dense enough to justify the existence of a medical school is served by a large number of general and special hospitals. The use of such hospitals is desirable, especially if the school can secure in this way an opportunity for its students to study the types of diseases which are not usually seen in the active general hospital service. The chronic diseases of the joints and of the nervous system, the advanced stages of tuberculosis and of the alterations in physiology of the aged, as well as the care and feeding of healthy infants, can best be seen in the homes and nurseries devoted to such work rather than in general hospitals. Then there are the special hospitals for maternity cases, eye and ear infirmaries, orthopedic hospitals and the like, where certain classes of patients may be found in greater abundance than at the general hospital. The system of education by service as clinical clerk necessarily takes a student away from his school routine to a certain extent and lends itself readily for visits to such institutions even at a considerable distance from the school. It is possible, therefore, to use extramural and special hospitals for ward classes and in the service for clinical clerks, but, of course, the school should control the appointment of the instructors in charge of that work.

Only hospitals under complete university control should be used for undergraduate teaching. Other hospitals, so-called extramural hospitals, may, with advantage, be maintained for the training of teachers, for keeping up a spirit of emulation among teachers, for illustrating features of disease not often seen in general hospitals and for the instruction of graduates. As many extramural hospitals as possible should be brought into affiliation with the medical school, to provide for the development of graduate work, which now needs to have careful consideration. Hospital trustees, as well as the public generally, are beginning to realize that active educational relationships with medical schools are of the greatest benefit to the hospitals, the patients and the public.

8. *Departmental Coordination of Teaching.*—That there is need of greater coordination not only between the various clinical departments, but also between the clinical and laboratory departments is quite apparent. Of equal importance with deciding the place in the curriculum where the various clinical branches shall begin and recommending to the first-class medical schools the adoption of a uniform plan in this respect, is this question of departmental coordination of teaching. Too often it would seem that the relationship of a student to certain branches of his instruction is that of a school child who says, "I have finished such and such a study." Like the child, he says, "I have finished anatomy, histology, embryology," and literally puts it away until he must hurriedly resurrect it prior to a state board examination. This could be avoided if there was a coordination of the courses, step by step, the professor of physiology, for example, or of chemistry, emphasizing the practical relationship of his branch to the instruction in the clinical departments. So, also, whenever it is possible it would seem wise that students should be able to attend instruction at closely related periods of time in subjects that are intimately connected one with the other, for example, the anatomy and the physiology of the circulatory apparatus, and the physiologic action of various remedies on this apparatus.

Another matter, and one of great concern to medical students, to use a homely phrase, is how to decide when doctors disagree, and too often the statements of teachers conflict. That any teacher should be forbidden an expression of individual opinion in the course of his instruction would naturally not be tolerated, but the opposing view, if there is an opposing view, must be fairly stated, and consensus of opinion clearly given. Such "conflicts" can be avoided by frequent conferences either between the heads of the departments, or between the head of a department and his corps of instructors. In like manner, the repetition of courses can be prevented by similar conferences, and also by a rule that the head of each department shall file in the dean's office, at the beginning of each semester, a schedule of the courses his department proposes to offer.

There is marked advantage also in the use of combination courses, like those inaugurated at McGill and Harvard, in which the professors of medicine and of pathology unite to demonstrate ante-mortem diagnoses and post-mortem findings. Similar combinations between the departments of surgery and anatomy in the study of fractures and dislocations, and of physiology and medicine in the study of the heart and circulation, have been given in other schools.

In order that students shall realize the importance of the "head specialties" (eye, ear, nose and throat) in their study of general medicine and surgery, departmental coordination is of particular advantage. Thus, for example, the teaching of ophthalmology should be in close relationship with that of physiology (the physiology of vision); with that of neurology (ophthalmic neurology); with that of clinical medicine (medical ophthalmoscopy); with that of surgery (problems of increased intracranial tension, ocular interpretations of spinal and cerebral lesions). An excellent plan is suggested in one report, which permits the head of the department of ophthalmology to invite the heads of the departments of clinical medicine and surgery to give portions of the lectures and demonstrations, which in the last-named branches must necessarily be concerned with the results of ophthalmic examinations. The same plan would apply to other specialties.

In general, all laboratory teachers will have their own work and their own problems, though many of the latter will be purely scientific. At all times the clinical workers should be sure of cooperation and assistance from the laboratory staffs. It would be desirable if they could at times move into the chemical or physiologic laboratory, or even that of physics, in order to become more familiar with other work, or to obtain suggestions as to how they may attack some fundamental problem. Our long and rigid courses and the fact that all our vacations come at the same time prevent this practice from being as much in vogue as it is in Europe.

9. *Limiting the Practice of Clinical Teachers.*—The recently formulated question of limiting the practice of clinical teachers deserves careful consideration. The members of the committee are unanimous in expressing a sympathetic interest in the educational experiment of providing full-time clinical professors in medicine, surgery and pediatrics now being tried out at the Johns Hopkins Medical School, an institution having such admirable facilities for it. In fact, the principle that the practice of clinical teachers should be restricted appears to have general acceptance. In determining to what extent that practice should be limited, there are two extremes somewhere between which it is possible to construct a rational scheme. On the one side is the whole-time requirement as adopted at Johns Hopkins, and on the other side is the condition in some medical schools where clinical teachers are so busy with their private practice that their teaching is bady neglected. Opinion is by no means unanimous that the whole-time requirement is ideal, but even if it is ideal, such a requirement could not rationally be advised at present owing to the fact that so few of the medical schools are adequately financed to put it into effect.

On the other hand, it is imperative that we get away from the other extreme. An extensive time-consuming private practice, with the minimum of teaching responsibility, must give place to the teacher whose chief business is to instruct medical students, who chooses the work because he loves it, and who is qualified by education and by personal experience in experimental work to be a productive teacher. Given such teachers, the limitation of their practice will take care of itself. A matter of the highest importance is to build up a system of organization that will develop for the future the best clinical teachers. Is the best scheme one that will demand a restriction of private practice to hospital consultations, or should private practice be prohibited entirely? Is a certain amount of private practice essential to develop the best clinical teachers? Is some private practice by clinical teachers essential to keep medical education in sympathetic touch with the human side of medical practice? Will the placing of clinical chairs on a full-time basis result in a gradual separation of medical teachers from perhaps some of the most vital problems of active medical practice? These are some of the questions which should be considered in the discussion of this subject.

IN CONCLUSION

Whatever may be said regarding the practicability of limiting the practice of clinical teachers, the other propositions dealt with in this paper have to do with improvements which are well within the reach of the majority of medical colleges. To construct a reasonable working standard for immediate adoption and another more ideal standard for adoption sometime in the early future, is the chief function of this Committee on the Reorganization of Clinical Teaching. This committee will doubtless receive much valuable aid in its task from the discussions at this conference.

The Primal Aim.—For the state as for the individual, health is the first postulate of prosperity and prosperity should be the first object of scientific government.—Ronald Ross, "The Prevention of Malaria."

THE UNIVERSITY AND HIGHER DEGREES IN MEDICINE *

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The university has hardly assumed responsibility for one problem of medical education before it finds itself confronted by other demands in the same field. There were good reasons why institutions of higher learning should undertake the conduct and standardizing of undergraduate training in medicine. The proprietary medical schools of the older type had rendered valuable pioneer service but were reaching the limits of their efficiency. Large resources of laboratory, clinic and endowment were needed to supply proper facilities for medical education of the newer type. The university was in a position to do much if not all that the situation demanded. Modern medicine is wholly dependent on the fundamental sciences of physics, chemistry and biology. The university was already equipped to furnish the necessary preparation in these departments. There was obvious economy in an oragnic connection between medicine and other university disciplines. So, too, many subjects less fundamental but distinctly ancillary were already included in the university curriculum and could be used to strengthen and enrich the medical courses. Furthermore, the general atmosphere of investigation and professional teaching which characterizes the university environment was singularly favorable to the proper development of research and instruction in the medical sciences.

In the university community it was also easier to foster the altruistic ideals which ought to guide and inspire the medical profession. Important, too, was the fact that the university stands as a disinterested social agency, aiming primarily, not at offering special privileges to individuals, but at rendering service to the public. By creating standards and applying tests it tries to protect the community against incompetent and unscrupulous exploiters of public credulity and confidence. It was right and inevitable, therefore, that the university should assume chief responsibility for the organization and standardizing of undergraduate preparation for the medical profession.

The rate at which modern science is developing is almost disconcerting. This is conspicuously true of the progress of medical science and technic. This growth is, to be sure, beneficent, but from an administrative point of view its rapidity and the insatiable demands which flow from it have a touch of malignity.

The undergraduate curriculum cannot begin to include the new knowledge. Specialization here, as in many other fields of human investigation and experience, is not to be avoided. From the starting point of a fundamental general training men must devote themselves to differentiated subjects of inquiry and an appropriate technic. Out of this situation and the consequent needs of the profession come certain insistent demands. Able practitioners more and more feel the necessity of keeping abreast of the newer developments in medical science. It is of prime social importance that these men should be afforded every available opportunity.

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There are other practitioners whose professional education has been defective. These men are desirous of making up lost ground and bringing themselves nearer to the better standards of to-day. Both individual need and social welfare suggest the value of aiding men of this class. Again, an increasing number of medical graduates appreciate the necessity of making a thorough preparation for a specialty. They require something more than brief and fragmentary courses; they desire continuous, advanced and authoritative instruction as well as opportunities for investigation. Last of all, another group of students who are particularly interested in research and in teaching as careers are seeking thorough preparation and disciplinary training in the best methods of original investigation. Finally, there is a growing public demand for special service and for some way of knowing how to tell the qualified from the pretenders.

The same reasons that led universities to take over undergraduate medical teaching now seem to justify them in trying to meet the other demands which have just been enumerated. There can be no doubt that the university equipment and environment afford the best opportunities for doing these newer things. It is especially important that right standards should be gradually worked out. The university is in a position to create and protect such standards as no independent group can hope to do. These standards, it is true, cannot be formulated over night and enforced on the public. There must be careful study and matured experience, before anything at all fixed or authoritative is promulgated. Yet at the outset certain ideals and tests may be set up as a basis for gradual, well-considered elaboration. The university has at the beginning this advantage: It can provide an existing prestige and give immediate support to any initial requirements that may be agreed on. University social authority may well provide a better basis for public respect for the medical profession and particularly for those types of special expertness with respect to which the public feels the need of standards of appraisal.

The allusion to university prestige should not be misinterpreted. There are other ways in which centers of authority may be created. For example, the newly organized American College of Surgeons is an interesting and significant attempt to create a new social agency of prestige. There is every reason to believe that in time this and similar colleges will exert an important influence.

In the meantime, the universities have a power which may be utilized at once. It may be noted further, that the European war and the conditions which are likely to exist for a long time after peace has been proclaimed afford American universities opportunities so obvious and insistent as to constitute almost obligations to undertake graduate work in medicine.

The brief courses now known as "postgraduate" or "polyclinic courses" suggest the need for what may be called medical university extension. The value of courses of this kind cannot be questioned. It is only when such courses are superficial, and when they are made the basis for certificates and diplomas of a spurious specialism that they become a danger to the profession and a menace to the public. It seems to be agreed that the so-called "postgraduate" and "polyclinic courses" as conducted in certain large cities of the United States have been distinctly useful. If the university is to do its full duty by medical education courses of this character will have to be provided. In doing this the university will be following logically the development of modern university extension. In this field commercialized education must yield gradually to publicly endowed instruction. Correspondence courses afford a case in point. Universities are providing these courses on a university rather than a business basis.

"Short courses," notably in agriculture, have for some time been recognized as an important form of university extension. "Short courses" or "extra courses" in medicine would fit admirably into a plan of medical university extension. Special courses for this purpose will have to be established, for it seems to be generally agreed that the students who desire them ought not to be admitted to short sections or fragments of the regular undergraduate courses in the medical school. University plants are being utilized and university teachers employed in short courses in university extension. The same idea would be applicable to medical courses. Again, a special extension staff might be recruited and local centers organized under university auspices throughout a whole region.

The plan by which instruction of this kind is regularly conducted in forty-eight German cities is full of suggestions. The whole enterprise is centralized in Berlin, but local academies and teaching centers provide a net-work of medical extension throughout a large part of the German Empire. Beginnings of such a plan have been undertaken in Kentucky, and Wisconsin is reported to be contemplating a similar experiment.

In assuming responsibility for medical instruction of an extension type, the university should protect the public and should maintain standards by carefully differentiating between "practitioners' courses," "extra courses," "summer courses," or whatever term may be employed, and courses of an advanced and genuine graduate character. The use of the term "postgraduate" is unfortunate and ought to be abandoned. It is a source of constant confusion. Postgraduate applies to the student and is a time designation; the emphasis is on the *post;* while the word *graduate* has come to describe a kind of advanced work distinctly above and beyond the undergraduate type of instruction. It is to be hoped that some such term as "practitioners' course" or "polyclinic course" may be substituted for the term postgraduate.

The university should also raise the minimum length and improve the character of courses for which any sort of recognition will be given. The university medical school should in every feasible way make its laboratories and clinics accessible to ambitious and intelligent practitioners, but the institution should be extremely careful with respect to any formal recognition which is given to individuals who take advantage of these opportunities. It is the duty, therefore, of the university, to guard conscientiously the issuance of formal certificates of proficiency. The public will not sharply distinguish between such certificates and the diplomas which may be granted for work of a very different character and quantity. Harvard has set an admirable example by announcing that after June 1 of this year certificates will be isued only to students who have spent at least eight months in full time study.

Although universities recognize their obligation to provide "practitioners'" or "polyclinic" courses, they are peculiarly concerned in the development of advanced or truly graduate instruction. Teaching of this type must be tested by the best standards that prevail throughout the graduate school of the university. The instruction should be planned for practitioners or other graduates who can devote at least a year to advanced study. The many American physicians who have been accustomed to spend a year in study abroad represent a group who more and more will look to American universities to provide the opportunities which have heretofore been sought in Europe. True graduate policies will concern themselves most of all with those students who are able and willing to devote a period of two or three years to advanced study and research. Such men would be preparing themselves for specialties based on careful scientific investigation, rather than on mere technical skill. Advanced instruction of this sort would also appeal to those who are interested in the career of investigation and teaching.

One of the strongest appeals which this graduate work makes to the university is the hope that it will increase the supply and improve the training of medical teachers. Is it too much to expect that in the groups of advanced students there will begin to appear that longed-for clinical teacher who will be willing to devote himself to medical investigations and teaching on terms comparable with those on which his laboratory colleagues can be induced to devote their lives to this career? Is there no escape from the idea that all clinical teachers must have training in private practice?

Furthermore, the university would welcome advanced graduate teaching because of its reaction and influence on the medical school as a whole as well as on the graduate school of the entire university. It must not be forgotten that medicine has long since ceased to be a drugging art and has become one of the biologic sciences. The formal recognition of medicine as one of the legitimate subjects of graduate work would have an important bearing on research and advanced teaching in every department of the university.

It is hardly necessary to do more than mention the influence of the graduate work on university hospitals. The clinical material would be more effectively used, and the staff, including the interns, would be stimulated. This would involve better and more intelligent service for the patients themselves.

In planning graduate work of an advanced sort the university must not be misled by analogies with other types of graduate teaching. It would be an unfortunate mistake prematurely to impose on advanced medical instruction a fixed curriculum. Even the undergraduate curriculum has suffered from traditional rather than rational growth. In the words of Dean Blumer: "The growth of most medical curricula has been stalactitic rather than logical, by accretion rather than by selection." The graduate curriculum ought not to be allowed to suffer from this tendency. As a matter of fact the conditions are all against a formal and fixed curriculum. The number of students would not in many cases justify the organization of regular classes and courses. Moreover, the expense would be prohibitive and there would not be enough teachers available. The work, therefore, for a considerable time must be informal and individual, of the apprenticeship type. The graduate students would naturally constitute a corps of men spending the larger part of their time in close personal contact with the leading men of the medical school staff. The work, moreover, ought to involve the development in the student of resourcefulness and individual initiative. He should have, under proper regulation, the fullest possible access to laboratories and clinical material. He should be set problems and held to responsibility. In other words, the work should be conducted in the true graduate spirit rather than in the didactic fashion once traditional, if not appropriate, in the undergraduate courses.

The neccessarily individual character of graduate work in medicine has important implications and consequences. Undergraduate teaching demands class instruction and centralized clinical facilities. Graduate activities must lay the stress on problems, specialized opportunities and leadership in investigation. Graduate students may, therefore, be encouraged to seek men, materials and methods whenever these are to be found, provided only that the direction and oversight of competent investigators can be guaranteed. Various institutions, public and private, can be utilized and credit toward higher degrees or certificates granted for work done under accredited auspices. The University of London and the University of Cambridge recognize in this way certificates from certain cooperative clinics in London. The university should make its object the discovery and organization of all possible agencies for giving graduate students the best opportunities for individual work under the most stimulating conditions.

The social and economic basis for graduate work deserves consideration. The increasing cost of medical education to the student as well as to the university has been frequently challenged. It is asserted with a good deal of force that the body of medical students represents economic selection rather than the survival of the best type of ability. The proposal, therefore, to add two or three years to the period of medical preparation raises serious questions. The pressure on graduates to enter medical practice is naturally strong. When a successful practice has been secured the temptation to maintain this is hard to resist. Nevertheless it is well known that many men, after four or five years of practice, surrender a large part of the advantages gained and spend a year or more in foreign study.

There are other men who seem ready to continue graduate work after taking the first degree in medicine. Some of these men have private means, but most of them can continue only with the aid of a stipend. It seems likely, therefore, that, as in the case of all graduate work, fellowships and teaching assistantships will have to be provided by the university in order to cooperate with the men who are willing to devote so long a time to thorough medical preparation.

The employment of such fellows and assistants is not to be regarded as a device for supporting graduate students at the expense of the undergraduates. In many ways these fellows would be helpful to the younger students, could give individual attention to them and perform a useful function in supplementing the work of the regular staff. The further possibility of discovering and developing special teaching aptitudes in these fellows will be readily apparent.

The University of Minnesota Medical School has made a beginning in establishing teaching fellowships. Such fellowships involve ordinarily an appointment for three years on a stipend of $500 for the first year, $750 for the second, and $1,000 for the third. It is too early to make prediction as to the outcome. All that can be said is that for the present year five or six excellent men have accepted these fellowships; the outlook is distinctly promising.

Graduate medical work ought to have an important bearing, as has already been suggested, on the problem of securing medical teachers; especially in developing a new type of clinical teacher. Heretofore no career other than practice has been open to the men whose special interests were in the clinical field. Teaching with them has been more or less incidental to the practice of their profession. Medical education owes a great debt to hundreds of practicing physicians who have given generously of their time and effort to the building up of medical schools in the United States. But it is recognized that the conditions are changing and that the old plans must yield to new policies and practices. The payment of clinical teachers is one of the most important, as it is one of the most baffling, of the present problems in medical education. The experiment at Johns Hopkins University Medical School and the proposed experiment at Washington University will be watched with much interest. What effect a high clinical salary will have on university administration generally is hard to say. If a large clinical salary is to be regarded merely as a temporary adjustment to existing conditions, the difficulties may not be serious but if such a salary scale is accepted as normal, the effect not only on laboratory investigators and teachers, but on the members of the faculties in law, engineering, and other professional schools will be watched with considerable solicitude by those who are responsible for university budgets. If, therefore, a new type of clinical teacher can be developed who will measure himself, not with successful practicing physicians, but with his colleagues in the university, a great advance will be made in medical education. Certainly the development of graduate work will aid rather than hinder such a solution. This should not be interpreted to mean that the practitioner is to be ultimately eliminated from medical teaching, especially from graduate work in medicine. So far as one can now see, such teachers will always be needed for rounding out the clinical curriculum, and notably for directing graduate work in the various special fields.

The policy with regard to university degrees for graduate work should be conservative. There is danger of putting too much faith in degrees. One must have a good deal of sympathy with those who rebel against formal academic honors. Some one has said: "A degree is a title of dignity, not a badge of proficiency." There is some support for the contention that the degree is neither of these things. The academic world appraises pretty accurately the value of a degree. The degree of Doctor of Philosophy, for example, is not deemed a token of proficient scholarship or of great achievement. It indicates merely that one has become familiar with scientific method, has been given a preliminary apprenticeship in the technic and spirit of advanced work, and has been regarded by a group of scholars as giving promise of ability to do independent and authoritative work. The Ph.D. is a license to undertake a task rather than a guarantee that one will accomplish it. Degrees nevertheless have undoubted value. They are made the basis for academic selection. There is danger no doubt of applying such a standard too rigidly. Nevertheless, to appoint to an academic position a man who has not received his doctor's degree is regarded either as a questionable practice, or as a distinct tribute to the individual's capacity and independent resourcefulness. Moreover, the degree is one of the devices for recognizing and maintaining standards. In the medical field it would be a way of indicating that a medical teacher, for example, must be more than a practitioner. With the introduction of graduate work in medicine it would become the custom not to appoint as a teacher or investigator one who had not done advanced work of the sort which could be recognized by a degree.

There is room for difference of opinion as to the wisdom of multiplying special degrees. In behalf of such degrees it may be urged that they would have a special and distinguishing character that would indicate correctly the type of work for which they were granted. On the other hand, there is danger of misunderstandings and of unscrupulous imitation when the number of different degrees becomes so large that the public is confused. The tendency in academic life seems toward a few well-understood marks of distinction. Such degrees fall into three classes: first degrees, that is, various forms of the Bachelor's degree; second degrees, the several Master's degrees, and third, the degree of Doctor. Here the standard graduate degree is the Doctor of Philosophy. The degree of Doctor of Public Health is ranked with Ph.D. Medical degrees are not quite in accord with academic practice. To be sure, we now have a baccalaureate basis of B.S. for the Medical degree and it is equally true that in length of time the M.D. is nearly equivalent to the Ph.D. So far as academic standards go, however, the M.D., from the graduate point of view, approximates the M.S. It would be convenient if there might be, as in England, the degree of Bachelor of Medicine, to be followed by the degree of Doctor of Medicine, as a higher degree, but it would be quite futile to attempt such a readjustment. It would be repugnant to the general traditions of American life and especially offensive to the medical profession.

If higher degrees are to be granted they should be given only in recognition of full-time work extending over a period of two or three years. In other words, the academic standards for higher degrees ought to be maintained. As to the character of these degrees, it would seem wise to employ Master of Science, Doctor of Science, and Doctor of Philosophy to appraise the different types of graduate work in medicine. These degrees have a well-recognized status and would bring medical graduate work into complete accord with the other graduate work of the university. In case it seemed well to recognize the different specialties, the diploma itself might indicate the particular field in which the work toward the degree had been done.

There is one important reason for using the conventional degrees for recognition of advanced work in medicine. The distinction between laboratory and clinical work would be less sharply drawn than it is at present. This seems to be highly desirable for it is more and more obvious that laboratory work which is not in constant relations with the clinical side is likely to become abstract, academic, and sterile. It is quite true, on the other hand, that clinical work that does not keep close to the laboratory is in danger of tending toward empiricism and mere technic. It would be a great gain if graduate work in medicine and the degrees which were granted in recognition of it could consciously emphasize the importance of keeping the laboratory and the clinical sides in constant and reciprocal relationship.

In conclusion, we may summarize the situation as follows: The university must assume its obligations toward all types of medical education; it must distinguish consciously and carefully between medical extension and genuine graduate work in medicine; it must develop graduate courses in an informal and flexible way so as to utilize accumulating experience wisely, take advantage of all facilities, and avoid a premature conventionalizing of advanced work in medicine. Finally, the university should adopt a cautious, conservative policy with respect to higher degrees; it should aim at coordinating graduate work in medicine with the graduate work of the institution as a whole, and should recognize this work in practically the same way that all types of advanced study are signalized.

COURSES AND DEGREES IN PUBLIC HEALTH WORK *

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The educator interested in preparing students for service in public health work must take several factors into account. First of all, the education must be for service. Furthermore, the quality of that service is exacting and of great importance to the community. In order, then, to be satisfactory, the education must be special, yet comprehensive. The saying that the student should know something of everything and everything of something applies here with particular emphasis. The underlying sciences which form the basis of preventive medicine are various, and therefore a satisfactory knowledge of the medical as well as the related sciences is necessary for success in a public health career.

Pehaps the next most important consideration is that the education for public health service may take one of four directions. The public health servant may be teacher, research scholar, technical expert or administrator. A survey of the field of public health work as it exists in this and in other countries will disclose the fact that the successful workers are dedicating their lives to one of these four general subdivisions. Some peculiarly fitted by nature and temperament are teaching the subject; others are sacrificing much to the call of laboratory research; others again are devoting their energies to the technical art of one of the sanitary sciences, while many must be administrators. Occasionally we find a man with special endowments who combines several of these phases and is at once administrator and research student, technician and teacher; but as a rule it will be found desirable if not necessary to place emphasis on one line of activity in order to achieve success—at least to achieve distinction, which currently passes as success. There is much overlapping and interlocking, for often the research student becomes teacher; the technical expert becomes administrator.

With these points in view, the next matter requiring our attention is that since the education is to be for service, it must be practical, but a practical art based on sound science. The only satisfactory practical work done in public health lines is accomplished by those who have a secure scientific foundation. It is pitiful to watch the vain strivings and waste of energy, time and money by public health officers who have an imperfect or incomplete knowledge of the sciences on which their work is based.

This brings us to another important consideration, and that is, that the object of public health work is the prevention of disease. It is impossible successfully to prevent disease without a knowledge of disease. Therefore, the fundamental medical sciences must form the background of a good education for public health service. By this I do not mean the orthodox medical curriculum that has for its object training for the practice of medicine. The practitioner of the art of medicine must make a special study of diagnosis and treatment. When a patient consults a physician, he wants to know two things: First, "What is the matter with me?" and second, "What can be done to relieve me?" The successful doctor then becomes a specialist in the recognition of disease and the use of remedial measures. His object is to cure rather than to prevent. On the other hand, the public health officer is interested more in the mode of spread and methods of preventing disease. The two points of view are quite distinct.[1]

The medical curriculum, already overcrowded, has little time for sanitation and hygiene, much less for vital statistics, epidemiology, public health administration, quarantine, industrial hygiene, sanitary engineering, management of epidemics, rural and dairy hygiene, milk supplies, food adulteration, sewage disposal, water purification, heating, lighting and ventilation, housing, social service work, school hygiene, infant mortality, public health laboratory methods, and a number of other subjects on which an efficient health officer must be well informed.

Public health work is therefore becoming, in fact, has already become, a separate profession. It has split off from medicine just as medicine long ago split off from the priesthood. Public health service, as a career, must be made an end in itself. It is often difficult and sometimes impossible to bend the physician into a health officer. The ordinary medical training does not qualify a person to be a health officer any more than the training suitable for public health service would qualify a man to practice medicine. Sanitation, then, has become more than a specialty; it is a profession.

The time has long gone by when the physician can spend a few hours from his busy day to look after the duties of the health office. The situation demands the entire time and energy of those who consecrate their lives to the public welfare. In order to attract capable men to the new profession, it is important that the health officer should have an assured tenure of office with adequate pay and freedom from politics.

These facts are stated in order to throw force into my contention that special degrees should be provided

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* Read at the *Eleventh Annual Conference on Medical Education of the American Medical Association*, Chicago, Feb. 16, 1915. The discussion of this paper appears under Society Proceedings, this issue.

[1] The modern practitioner of medicine is fast adding prevention as one of the tools of his equipment. The future student of medicine will make a study of health and how to maintain it, as well as a study of disease and how to cure it. However, the point of view of the practitioner of medicine is personal and particular, while the point of view of the sanitarian is communal and general.

for those who qualify for public health service. In this way the fundamental distinction between the health officer and the physician will be borne into the consciousness of lay and professional minds.[2]

A school for health officers in a university organization should occupy a position as separate as that of the medical school, the dental school, the engineering school or the law school. A school for health officers needs a separate faculty, but also needs cooperation with other schools in the university. Thus it needs sanitary law from the law school, sanitary engineering from the engineering school, oral prophylaxis from the dental school, the medical sciences from the medical school. A school for health officers, in fact, must reach out more widely than the resources of any university. Thus, it needs the contagious disease hospital; it needs the city board of health, the state department of health and the federal Public Health Service, for instruction, for inspiration and for opportunities that lie without the bounds of any university. A school for health officers also interlocks with many private and semipublic philanthropic organizations.

All this is a far cry from the practice of medicine, and emphasizes the point I wish to make, that the public health officer needs a separate and special training and should have a separate and special title or degree to designate his special qualifications.

The commissioner of health of a large city cannot be qualified in all the sanitary sciences. He cannot be an expert diagnostician, a good statistician, a competent engineer, a skilled laboratory technician, a capable sanitary lawyer as well as a good administrator, yet he must know something of all these. The commissioner of health of a large city has a corps of specialists to help him in each of these separate fields. On the other hand, the health officer of the small community must be a Jack of all trades. The great point here is that the latter shall be qualified to know his limitations and be ready to call on experts who are furnished by the state and government to assist in troublesome, novel or particularly dangerous situations. To discuss this phase of the subject would carry us far afield; but the facts are brought out here to show that there is need of several kinds of degrees in public health work, such as certificates, diplomas and doctorates.

The certificate or diploma in public health should be used to designate those who have the minimum training believed necessary to carry on public health work. This means at least four years of special study equivalent to college grade; while the doctor of public health degree should be limited to those who have longer training and have in addition carried on original research in some branch of sanitation and hygiene.

How the problem is met may perhaps best be approached by describing a special instance. Permit me, therefore, to tell you how Harvard University has endeavored to solve the problem. At present, the certificate in public health (C.P.H.) and the doctorate of public health (Dr.P.H.) are given in Boston. The certificate in public health is issued by the School for Health Officers of Harvard University and the Massachusetts Institute of Technology, while the doctorate of public health is one of the higher degrees offered by Harvard University.

SCHOOL FOR HEALTH OFFICERS

The School for Health Officers is an enterprise conducted by Harvard University and the Massachusetts Institute of Technology acting in cooperation through an administrative board appointed for this purpose by both institutions. Prof. William T. Sedgwick is chairman of the administrative board, Prof. G. C. Whipple is secretary, and Prof. M. J. Rosenau is director of the school.

The object of the school is to prepare young men for public health work and especially to fit them to occupy administrative positions as health officers, or members of boards of health, or sanitary agents, district health inspectors or technical experts of health organizations.

To this end, lectures, laboratory work and other forms of instruction are offered by both Harvard and the Massachusetts Institute of Technology and by special instructors from national, state and local health agencies. The School for Health Officers also enjoys close cooperation with the Harvard School of Tropical Medicine, so ably presided over by Prof. Richard P. Strong.

The primary object of the School for Health Officers is to provide the scientific groundwork in the sanitary sciences which underlies efficient health administration. The country needs leaders in every community fitted to guide and instruct the people in the art of hygienic living; qualified to direct the expenditure of energy, time and money in public health work into fruitful channels, and able to initiate plans to meet novel conditions as they arise.

The requirements for admission are practically the same as those for Grade A medical schools, that is, two years of college work including physics, chemistry and biology, French and German. Such students are then required to spend not less than two and usually three years in the School for Health Officers in order to get the certificate in public health (C.P.H.).

Students, of course, may be admitted to advanced standing; graduates in medicine of recognized schools as well as bachelors of science, or biology and public health, of the Massachusetts Institute of Technology, who are likewise admitted on their records, may achieve the certificate after one year's work. Candidates for the certificate are not required to have the medical degree, but must have credits in the fundamental medical sciences. While the medical degree is not a prerequisite for the certificate in public health, candidates are advised to get the medical degree before specializing in public health work. Experience teaches that preferment for employment and advancement to the higher positions come more readily to those who have the medical degree.

The certificate in public health is not granted unless the candidate has satisfactorily completed courses in the following fundamental subjects: anatomy, physiology, pathology, bacteriology, biologic chemistry, sanitary biology, preventive medicine and hygiene, demography and sanitary engineering.

Furthermore, every candidate for the certificate in public health must make a sanitary survey of some city or town and submit a report on it. Special emphasis is laid on this sanitary survey on account of its practical importance.

The courses available in the School for Health Officers are not restricted to those stated in the catalogue, but may include subjects in any department of Harvard University or the Massachusetts Institute of

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[2] At this point it should be made clear that there is a distinction between the medical officer of health and the health officer, and it should be remembered that it is only the latter of whom we are now speaking, for the country needs health officers.

Technology, provided they are in harmony with the objects of the school. Certain special courses are given by instructors not otherwise connected with either institution, and practical work is taken in city, state and national health departments and in the hospitals of Boston. All such work in each instance is conducted under suitable supervision and restrictions. At the completion of his course, every candidate is required to submit to a general oral examination by the administrative board in order to obtain the certificate in public health.

DOCTOR OF PUBLIC HEALTH

This is one of the higher degrees offered by Harvard University. It corresponds in certain particulars to the doctorate in philosophy. To obtain the doctor of public health degree (Dr.P.H.), the candidate must have a satisfactory knowledge of the medical sciences as well as the related physical and biologic sciences that form the basis of preventive medicine. Candidates for the degree of doctor of public health are advised first to take the course leading to the degree of M.D.

Graduates in medicine who have a knowledge of sanitary engineering, vital statistics and preventive medicine must spend not less than one year on a special subject, and present an acceptable thesis containing results of original research in order to gain the degree of Dr.P.H. Each candidate must, in addition, make a sanitary survey of a city. While one year in residence is the minimum requisite, it is impossible without special experience and qualifications to accomplish all of the requirements in this short time.

While candidates for the degree of Dr.P.H. are advised first to take the medical course, the medical degree is not a prerequisite. Those who desire to specialize in sanitary engineering, sanitary architecture, sanitary biology, sanitary chemistry, demography or some other branch of public health work may receive the degree after no less than four years of graduate work in approved subjects, including an acceptable thesis embodying the results of original research.

The degree of Dr.P.H. does not rest on any computation of time, or on any enumeration of courses; although a student cannot become a candidate until he has, in the judgment of the committee on the degree, fulfilled the requirements of residence and study. The degree is not given for the mere reason of faithful study for a prescribed time or for fulfillment of a determinate program, and never for miscellaneous studies; but only on the ground of long study and high attainment in the special branch of learning manifested not only by examination, but especially by the thesis.

The oral examination consists of a searching inquiry in the fields related to the subject of the candidate's thesis, and furthermore, includes the following subjects: communicable diseases, immunity, heredity, demography, sanitary engineering, sanitary law, hygiene, sanitation and preventive medicine.

The following list of titles illustrates the nature of the work of the candidates for the degree Dr.P.H. at Harvard University:

E. B. Beasley, A.B., M.D., Dr.P.H.: An Investigation on the Permeability of Slow Sand Filters to Bacillus Typhosus, *Jour. Med. Research*, 1911, xxv, 101.

A. I. Kendall, S.B., Ph.D., Dr.P.H.: Certain Fundamental Principles Relating to the Activity of Bacteria in the Intestinal Tract: Their Relation to Therapeutics, *Jour. Med. Research*, 1911, xxv, 117.

E. H. Schorer, B.S., M.D., Dr.P.H.: Experimental Studies on Milk, *Jour. Infect. Dis.*, 1912, xi, 295.

H. L. Amoss, S.M., M.D., Dr.P.H.: Organic Matter in the Expired Breath, with Special Reference to Its Inhibiting Power on Oxidizing Ferments, *Jour. Exper. Med.*, 1913, xviii, 132.

W. G. Anderson, M.A., M.Sc., M.D., Dr.P.H.: Heat, Moisture and Carbon Dioxide as Factors in Fatigue, Part published under title of On the Agitation of Air Rich in Carbon Dioxide, A Problem in Ventilation, *Med. Times*, January, 1914.

L. W. Hackett, A.B., M.D., Dr.P.H.: The Application of New Methods to the Study of Bacteria in the Air (not published: on file in the library).

W. D. Frost, S.B., S.M., Ph.D., Dr.P.H.: The Bacteriological Control of Public Milk Supplies, *Wisconsin Acad. Sc. Rep.*, 1914, xvii, Part II.

M. R. Edwards, M.D., Dr.P.H.: The Bacteriological Standardization of Disinfectants, with Especial Reference to the Presence of Organic Matter.

J. P. Simonds, A.B., M.D., Dr.P.H.: Studies in B. Welchii, with Special Reference to Classification and to Its Relation to Diarrhea (in press — Rockefeller Institute Monograph).

SPLENECTOMY IN PRIMARY PERNICIOUS ANEMIA

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Since Addison called the attention of the medical profession to the symptom complex called by him "idiopathic anemia," there has been an immense amount of study devoted to it. In spite of this, until very recently, it has continued to be one of the most hopeless conditions with which we have been called on to cope. Since the middle of 1913, occasional case reports and some lengthy articles have appeared in current medical literature concerning the treatment of this disease by splenectomy. Inasmuch as they have nearly all appeared in German magazines, that this work seems to be of great importance and that up to the present time a careful tabulation of the information on this subject has not been made in The Journal, it appears that the study which follows will be of profit.

The inquiry naturally divides itself into a consideration of:

1. The cause or causes of primary pernicious anemia.
2. The normal function of the spleen.
3. The effects of splenectomy.
4. The clinical results.

CAUSE OF PRIMARY PERNICIOUS ANEMIA

Primary pernicious anemia may be defined as a systemic disease, characterized by a blood picture which shows a high color index, a decrease in number of the erythrocytes, and the constant presence of poikilocytes, megalocytes, nucleated red cells, especially megaloblasts, and polychromatophilic red cells. There is progressive bodily weakness, the lemon-colored skin, digestive disorders, spinal cord symptoms, which may be tabetiform, paralytic or spastic in character, and no pronounced enlargement of the spleen or liver. The etiology is not settled, but the disease must be due to (1) a toxin, which destroys the cells or inhibits their development; (2) a disease of the blood-forming organs, or (3) an increased destruction of the blood cells due to an overaction of the blood-destroying organs.

The Toxin Theory

There is much that leads one to feel that the first or toxin theory is responsible in many cases. Faust and Tallqvist[1] have proved that the anemia caused by the *Bothriocephalus latus* is due to a powerful hemolytic substance, cholesterin oleic acid, which is formed in the proglottis of the parasites. The oleic acid is split up in the stomach; it is combined with alkalies in the intestine, and forms a soap which, when absorbed into the circulation, injures the erythrocytes. K. R. and R. Seyderlein,[2] in some work reported this year on anemia in the horse, have shown that it is due to a substance called by the authors "oestrin," which is elaborated by a parasite, the *Gastrophilus equi*. The anemia may be produced artificially by the injection of a watery extract of these parasites; it is exclusively specific for the horse. It is transmissible from the blood of a diseased horse to a healthy horse, and even the blood of the latter may transmit the disease.

The same arguments apply to hookworm anemia. This was originally supposed to be due to small hemorrhages occurring in the intestines, where they had been injured by the worm, but recently the toxin theory of this disease has been advanced. This is explained as being caused (*a*) by a toxin secreted by the worm, or (*b*) by a toxin produced by intestinal bacteria whose absorption occurs through the damaged epithelium (Nicoll[3]).

Both oleic acid and the "oestrin" of Seyderlein belong to the group of unsaturated fatty acids, and this suggested the thought to J. H. King,[4] who was working in the Eppinger clinic, that the human organism in disease may produce hemolyzing unsaturated fatty acids and if so, the question whether the elaboration of these acids can be ascribed to any of the organs of the body. He directed his study toward the spleen as being the organ thus responsible.

Joannovics and Pick[5] had already ascertained that in chronic toluylendiamin poisoning a great excess of oleic acid was formed, and that after splenectomy in dogs,[6] there resulted a marked diminution in the building of these higher unsaturated fatty acids. They found the same condition to obtain in phosphorus poisoning.

King undertook a series of experiments on dogs in which the quantity of unsaturated fatty acids circulating in the blood was estimated by ascertaining their iodin combining powers, the cholesterins first having been separated from the total lipoids. He found in splenectomized animals an increase of total fats and cholesterins, but a great decrease in the unsaturated fatty acids as expressed by the iodin number. He carried out the same study in three cases of pernicious anemia in man, which came to operation and duplicated the results found in dogs. These findings are of great importance from a therapeutic point of view, as the ordinary fats and cholesterins are protective against hemolytic agents, while the unsaturated fatty acids are decidedly hemolytic in action, splenectomy being thus helpful in two distinct directions. He concludes as follows:

> In pernicious anemia, hemolytic jaundice, some types of catarrhal jaundice, and cirrhosis of the liver, the hyperactive spleen unfavorably influences the anemia through its regulation of the highly hemolytic, unsaturated fatty acids in the blood. Its removal, therefore, appears to be indicated. Splenectomy of itself, besides influencing the production of hemolytic unsaturated fatty acids, raises the percentage of antihemolytic substances in the blood, that is, the total fats and cholesterins.

It has been suggested, after consideration of the hemolytic effects of the poisons of intestinal parasites, that possibly other hemolytic anemias in man may be caused by chemical compounds which are formed in or reach the blood current via the alimentary tract. The amins, for instance, are known to be products of bacterial changes occurring in proteins under conditions which may obtain in the gastro-intestinal tract.[7] Of these compounds, tyramin is especially conspicuous. It has been isolated from putrid meat, cheese and ergot. Oxyphenylethylamin is produced from the amino-acid tyrosin by various races of bacteria, among them the *Bacillus coli communis*, a known inhabitant of the intestinal tract of man. Iwao of Japan produced in animals a severe anemia of the pernicious type by the injection of small doses of tyramin. No studies have yet been made to ascertain what effect splenectomy may have in controlling the effects of poisoning by this group, or of the poisoning occurring from those elaborated by intestinal parasites.

Is Pernicious Anemia Due to a Disease of the Blood-Forming Organs?

In the embryonal life of man, the spleen produces erythrocytes, but this production ceases at birth. The only source from which red cells are produced, in postnatal life, is the marrow of the long bones. Throughout life, a nice balance is kept between production and destruction, so that the normal number of 5,000,000 red cells per cubic millimeter of blood is constant unless interfered with by pathologic processes. The factors in maintaining this balance are unknown, except that the marrow reacts to various chemical and infective agents. It has been suggested that the spleen acts normally to some extent as an inhibitor of the bone marrow, sending forth some influence that keeps a check on red cell production. In pernicious anemia, there is usually found a hyperplasia of the bone marrow. This and the relative abundance of nucleated red cells seem to indicate that the blood-producing organs are regenerating cells at an increased rate. This, however, does not proceed at a rate to compensate for the destruction which is going on. It does not seem probable, therefore, that this is a disease of the blood-forming organs.

Is Pernicious Anemia Due to an Overaction of the Blood-Destroying Organs?

The duration of the life of a red cell is not definitely known under all circumstances, but it probably averages from two to three weeks. There can be no question that the spleen is the organ primarily responsible for the destruction of the worn-out red blood cells. These worn-out cells give up their hematin to the spleen liver circulation. Bilirubin and biliverdin are formed. These are excreted via the bile to the intestines, in which bacterial action reduces them to urobilin in the urine and feces. Eppinger has devised a colorimetric method for this determination, and has laid great stress on the importance of this estimation in all diseases causing hemolysis. In fact, Eppinger and Ranzi state that they consider that enormous amounts of urobilin in the stool, rather than the icterus or spleen tumor, are the chief criterion to guide them in recommending splenectomy in hemolytic jaundice and associated conditions.

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[1] Faust, E. S., and Tallqvist, T. W.: Arch. f. exper. Path. u. Pharmakol., 1907, lvii, 367.

[2] Seyderlein, K. R., and Seyderlein, R.: Arch. f. exper. Path. u. Pharmakol., 1914, lxxvi.

[3] Nicoll: Jour. Hyg., London, 1914, xiii.

[4] King, J. H.: Studies in the Pathology of the Spleen, Arch. Int. Med., August, 1914, p. 145.

[5] Joannovics and Pick: Ztschr. f. exper. Path. u. Therap., 1909, xii, 185.

[6] Joannovics and Pick: Berl. klin. Wchnschr., 1910, xx.

[7] This is summarized in Experimental Pernicious Anemia and Alimentary Intoxication, editorial, The Journal A. M. A., June 13, 1914, p. 1894.

It seems to be quite probable that some hemolytic substances cause red cell destruction through an increase of splenic activity. It is possible that, as we become more familiar with the spleen and its function, we may find that it, like other ductless glands, the thyroids, adrenals and pituitary, may develop conditions of either hyperexcitability or hypo-excitability and that certain symptom complexes, such as Banti's disease, chronic family jaundice, Gaucher's disease and pernicious anemia, may be properly termed "hypersplenism" and others, polycythemia for example, "hyposplenism."

Just what happens if a condition of hypersplenism exists cannot as yet be definitely determined; whether it always results in an increased production of unsaturated fatty acids with consequent disintegration of the red cells, as the work of King seems to indicate, or whether there may be an increased cellular activity in the spleen itself, or if in some cases there may be a hemolytic effect from intestinal-formed toxins circulating in the general blood stream, or even some factor yet unthought of may be present, cannot now be stated. It is possible that no one pathologic condition is responsible for all cases.

As Moffitt[8] concisely says:

> I think we must, with Waitkin, realize that the infective agent or toxin of pernicious anemia may act differently at different times or that there may be splenic, lymphatic, hemolymphatic or marrow hemolysis. The shifting clinical pictures, the various reactions at different times to remedial measures like arsenic, blood transfusion, thorium X, salvarsan, splenectomy, the marked hemolysis in some cases, and its absence in others, the inconstancy of marrow reaction, all speak for a widespread influence of the poison in the economy with maximum effects apparent now in this organ, now in that.

Eppinger, in studying spleens removed for this disease, has emphasized the fact that the walls of the follicular arteries are thickened, thus causing a narrowing of their lumen, and that for this reason, the blood stream is turned directly into the interstices of the pulp. In one of the two cases in which I operated, the pulp seemed to be hyperemic, but there did not appear to be any marked increase of pigment in the splenic tissue. The other case showed little deviation from the normal. Moffitt reports having studied sections from eight cases in which operation was performed. He reports marked hyperemia of the pulp, little change in capsule or trabeculae, and variable conditions in the follicles. Eppinger feels that the change in the direction of the blood stream results in an increased phagocytic function of the organ.

We may summarize our present knowledge of the cause of primary pernicious anemia as follows: It is probably not due to a disease of the blood-forming tissue, namely, the red bone marrow. It probably is due to a toxin or toxins. This is undoubtedly the case in certain parasitic diseases, and it is probably true that bacterial action in the intestinal tract is responsible in some cases. King's work would indicate that an increase of the unsaturated fatty acids in the blood is present in many cases, and that they are hemolytic in action. The spleen appears to have a direct action in stimulating their production. It is probable also that in other cases there is a condition of hypersplenism with resultant (*a*) overproduction of an unidentified hemolytic substance, or (*b*) an increased cellular activity with resultant red cell destruction beyond the normal in the spleen itself, *because of the change in the direction of the blood stream spoken of by Eppinger.* Because of these considerations, splenectomy as a therapeutic measure was resorted to first about a year and a half ago in the Eppinger clinic, and it was very strongly advocated by Ranzi, who has done much of the operating for Eppinger, in an address delivered before various surgical societies during a trip made by him to the United States in April and May, 1914.

Granted that the spleen has an influence on the production of this disease, the query comes "Do we interfere with any other function of this organ which may be necessary for the well-being of our patients, if removal is resorted to?"

NORMAL FUNCTION OF THE SPLEEN

So far as we know, the functions of the spleen are as follows:

1. It retains the iron set free by destruction of blood cells, whereas the liver stores iron derived from food. These reserves are drawn on for the production of new hemoglobin.
2. It may have some effect on digestion. An improvement in appetite and stomach symptoms is usually noted after splenectomy in blood diseases.
3. The spleen usually enlarges and becomes hyperemic during the course of many infectious diseases. The well-known ague cake is an example. It has been thought that it might act as a protecting organ in systemic bacterial infections. Such a function has not been proved. Patients who have been splenectomized have passed through the various infectious diseases without special difficulty.
4. Experiments on chicken embryos indicate that the spleen exercises an inhibiting effect on the growth of neoplasms.
5. It may regulate the production of erythrocytes.
6. It most certainly destroys those that have reached the end of their usefulness.

We know that when other ductless glands are removed in their entirety, disaster overtakes that individual very speedily. Resection of a *portion* of the spleen is a very difficult piece of work, because of the great vascularity of this organ. The slightest tear in the capsule causes a very free flow of blood, and a temporary compression of the pedicle is dangerous on account of the friability of these tissues.

Mayo[9] has suggested that it may be possible by ligation of one or more branches of the splenic artery at the hilum so to reduce the blood supply as to cause atrophy of the spleen after the manner in which this result is secured in cases of hyperthyroidism.

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[8] Moffitt: Boston Med. and Surg. Jour., clxxi, No. 8.

[9] Mayo, William J.: Principles Underlying Surgery of the Spleen, The Journal A. M. A., Jan. 1, 1910, p. 14.

Dr. A. K. Steele, discussing Harris and Hertzog's paper, stated that of six patients operated on, four died, which would give this procedure a much higher mortality than splenectomy. Fortunately, a removal of the spleen does not cause disaster to the economy, and a splenectomy, while a serious operation, is perfectly feasible even in very ill persons, and it is not followed by serious after-effects.

This is probably explained by the fact that there are other organs which are able to compensate for the removed spleen. These are the accessory spleens, hemolymph glands and the thymus. True accessory spleens have frequently been described. The hemolymph glands are found in the thoracic and abdominal aggregations of lymphatic structures. Histologically, in addition to ordinary lymph follicles, there are found lymph sinuses and blood vessels, some of these sinuses being filled with red corpuscles. Cabot declares that in these sinuses the destruction of red corpuscles is considerable.

A number of investigators, notably Waitkin, have found that in dogs after splenectomy there is not only a great increase in size of the hemolymph glands, but also an increase in number. Pearce and Austin[10] found an increase of endothelial cells in the hemolymph glands of dogs following splenectomy, these cells being proved to have a phagocytic power over red cells after the injection of a hemolytic serum.

The thymus has been found to enlarge after splenectomy, and Boyer[11] regards the spleen and thymus as capable of functionally compensating each other. The presence and action of these accessory organs undoubtedly afford an explanation of the facts, first, that the spleen can be, and many times has been, removed without interfering with the well-being of the person operated on, and second, the gradual return of a patient suffering from pernicious anemia, who has been splenectomized, to a final hopeless condition after a marked improvement, immediately following the operative procedure. This was observed in one of my cases.

If we grant that splenectomy is indicated in the group of blood diseases whose presenting symptom is an anemia of the pernicious type, namely, primary pernicious anemia, Banti's disease, splenomegaly of the Gaucher type, chronic family jaundice and possibly Hanot's cirrhosis, it is proper to inquire as to the mortality of this operation. It is a serious piece of work, but the mortality is not high. Rodman and Willard give the mortality from operation in the first and second stages of Banti's disease at 12.5 per cent. The Mayo Clinic reported twenty-five splenectomies for all causes with two operative deaths. Griffin reports three operative deaths in eighteen cases for splenic anemia. Behling reports 8 per cent. mortality in seventy cases. Carsten reports a mortality of 18.5 per cent. in a collection of 739 cases of splenectomy for various lesions.

These figures show that the operative mortality is about that for abdominal neoplasms, the skill of the operator being the great factor for safety in this work. The first operation for primary pernicious anemia was done at Eppinger's request in March, 1913. I have found record of forty cases in which operation has been performed up to the present time; nine patients died either at operation or shortly thereafter. When one considers the desperate condition that some of these patients were in at the time of operation, this is not a high mortality. Both of the patients on whom I have operated had been confined to their beds for several weeks expecting death at any time. In this connection, it is well to bear in mind one very important advance in the therapy of this disease. Blood transfusion should be resorted to in all these cases prior to operation. It does not have a permanent curative effect, but it will bring up the blood count and tone of a patient so that the operative procedure can be carried out with much greater safety. This is a very practical procedure when a good clinical laboratory is at hand, since the method of using defibrinated blood has been perfected, and a classification of donor and recipient can be made after the method of Moss.

EFFECTS OF SPLENECTOMY AND CLINICAL RESULTS

Now the great question comes, "Is splenectomy worth while in primary pernicious anemia?"

What have been the clinical results? So far I have been unable to find a record of any cases that the surgeon has been willing to report as cured. There has been almost invariably an immediate and striking improvement in the blood picture. There is a rapid rise in number of erythrocytes and hemoglobin content, many nucleated red cells appear, and the Howell-Jolly bodies are found in abundance. Cells of the megalocyte type usually persist, and the blood does not resume an entirely normal appearance. The stomach symptoms are improved, and there is a decided gain in strength and spirits. A great sensitiveness of the long bones was present in one of my cases. This has been spoken of in other case reports and doubtless indicates a hyperemia of the bone marrow. Eppinger, Florcken and Mosse report cases in which the patients were clinically well after from six to nine months. Türk[12] gives the best summary of the question I have seen. He says:

> With pernicious anemia, splenectomy induces a marked change for the better, but the blood does not return to the normal type; the patients are much improved, but in none of the seven cases in which splenectomy has been done for pernicious anemia during the last ten months, has the blood picture returned to normal. But a remarkably rapid and thorough-going remission may almost be counted on in apparently moribund patients; it acts more rapidly than arsenic and as promptly as thorium, but it does not seem to remove the cause of pernicious anemia. The morbid spleen functioning is merely one link in the chain of factors causing the disease, but by removing it we make a gap in the chain, and even this is great gain.

There is one variety of this disease that should not be subjected to operation, namely, the anemia of the pernicious type developing in pregnancy. In these cases, which are quite rare, there is usually recovery after the pregnancy has been terminated. This subject is summarized by Schupbach.[13]

Emphasis must be placed on diagnosis in considering operative interference in these cases. No patient should be operated on until a negative Wassermann has been obtained; malaria and the anemias due to intestinal parasites must be excluded. Carcinoma of the stomach frequently gives an anemia of this clinical type, and even after careful clinical search has been made, the first thing to be done after the abdomen has been opened is to make a thorough exploration of the abdominal viscera, and especially of the stomach, for neoplasms. For the sake of accuracy in our statistics, as well as scientific pride, cases of Banti's disease, Gaucher's disease, Hanot's cirrhosis, family jaundice and pernicious anemia should be carefully segregated and thus tabulated.

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[10] Pearce and Austin: Jour. Exper. Med., 1912, xvii, 375.

[11] Boyer: Ann. Surg., July, 1901.

[12] Türk: Deutsch. med. Wchnschr., 1914, xl, No. 8.

[13] Schupbach: Cor.-Bl. f. schweiz. Aerzte, xliii, No. 47.

I operated in two cases of pernicious anemia in May, 1914. One of these was seen by Dr. Ranzi, who gave me courage to attack surgically what appeared to be a hopeless condition.[14] My experience coincides with others in that there was a marvelous initial improvement which had persisted in Case 2 up to October, 1914. I am sorry to say that I have now lost track of the patient. The other patient began to fail in September. He slowly returned to his bedridden condition. He developed a transverse myelitis, the blood gradually deteriorated, and he died, Dec. 16, 1914, seven months after the splenectomy was performed.

SUMMARY

1. Primary pernicious anemia is probably due to a toxin which may be of bacterial, chemical or parasitic origin, and in some cases there is an increase of the unsaturated fatty acids. The spleen seems to exercise an influence favorable to the elaboration of these substances. These toxins appear also to cause a hyperemia of the splenic pulp because of changes in the blood vessels, which cause the blood to be poured directly into the pulp. The presence of the spleen seems to cause a diminution in the amount of the total fats and cholesterins of the blood which are antihemolytic. For these theoretical reasons, and because of the numerous cases on record in which a cure has been obtained in Banti's disease, which is closely related to pernicious anemia, splenectomy appears to be indicated in these and the closely associated anemias.

2. Removal of the spleen either in sickness or in health does not affect the patient injuriously. The operative mortality is not high even in very weak patients.

3. A rapid and striking remission of all symptoms appears, the change in the blood picture coming quickly and quite certainly. It is too soon for us to know whether or not any patients will be permanently cured, but it is quite probable that a large percentage will succumb to the disease within a few months after operation. Other methods of treatment should be combined with splenectomy, as more than one factor is doubtless at work in these cases. It will certainly prolong life, and in our incomplete knowledge of the etiology of this disease and the certainty that death will come under every other known method of treatment, I believe that these patients should be offered this additional chance of recovery. We must remember that some patients have been reported symptomatically well at the end of nine months, even though the blood was not entirely normal.

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[14] The early results of these operations I reported in Surgery, Gynecology and Obstetrics, November, 1914.

A National Fortune Within Reach.—The economic gain to be obtained from preventing postponable disease, measured in dollars, exceeds one and one-half billion annually.—Irving Fisher.

COMPLEMENT FIXATION IN PARASITIC SKIN DISEASES *

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In a fairly minute examination of the literature on fungus diseases of the skin, we have found no reference to complement-fixation tests having been made.

This study was undertaken by us in conjunction with investigations on the subject of vaccine treatment of ringworm and favus, to determine if various pathogenic fungi stimulate the production of amboceptors, as possibly shedding more light on the mechanism of the immune processes operative in these infections.

We have found that, in the majority of cases of ringworm of the scalp and favus, complement fixation occurs with fungus antigens, and while this test may have a limited practical value, owing to the ease with which the diagnosis of these diseases may be made from the clinical aspects, supplemented by a microscopic examination of diseased hairs, in the diagnosis of doubtful cases the complement-fixation test may prove of value.

Since ringworm of the scalp is to be regarded as a superficial invasion of the tissues of the scalp, the invasion of the fungus usually being limited to the shafts of hairs and the neighboring cells of hair follicles, it is of added interest that antibodies, which may be demonstrated in the serum of a person with this disease by the complement-fixation technic, may be produced by mere parasitic invasion without true infection, if the latter term is restricted to a process characterized by the passage of a microparasite through the barrier epithelium to the tissues beneath. It is conceivable that the fungus of ringworm may produce soluble products which, being absorbed, are capable of stimulating the local and general body cells to produce antibodies.

Favus, on the other hand, is usually characterized by a well-marked invasion of all layers of the epiderm down to and not infrequently involving the underlying corium, so that in most instances the disease may be regarded as an infection in the true sense of the term.

Of interest in this connection is the demonstration by Plato, Truffi, Black and Massini of local and general allergic reactions in persons suffering with ringworm by the application or injection of "trichophytin," an extract prepared of cultures of the fungus indicating the presence of a lytic antibody in the body fluids of persons suffering with this disease.

Further interest in this subject refers to the possible interrelationship of the fungi of ringworm and favus as studied by a complement-fixation technic. Bodin has described cases in which lesions on the skin, similar to those produced by the trichophyton of ringworm, have been caused by a parasite of the nature of an achorion. Fox, Blaxall and Sabouraud have

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* From the Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine.

observed circinate lesions on the skin, and lesions like kerion on the scalp, similar to those produced by the trichophyta, which, on cultivation, gave a culture like that of favus. Such cases demonstrate the fact that the line of demarcation between the fungi of ringworm and favus is not well defined.

MATERIALS

Serums.—The serums of twenty-seven cases of ringworm of the scalp were studied; also the serums of three cases of favus and one of tinea versicolor. Most of these patients were in the services of Dr. Jay F. Schamberg in the Polyclinic and Philadelphia General hospitals.

In addition, the serum of rabbits immunized with repeated intravenous injections of the antigens of ringworm and favus fungi were employed in the study of the biologic relationship of these fungi.

Cultures.—Pure cultures of the ringworm and favus fungi were obtained by culturing diseased hairs in "French proof agar." In obtaining these cultures, diseased hairs were placed in a shallow dish of absolute alcohol for fifteen or twenty minutes, washed in sterile salt solution and planted at once on a layer of the medium contained in 250 c.c. wide-mouthed Erlenmeyer flasks. These were placed at room temperature for twenty-four days, and the colony studied. Usually the fungi could be obtained in pure culture, fulfilling the cultural and microscopic appearances of *Microsporon audouini* and the achorion of Schönlein, respectively.

For cultivating the fungus of ringworm, a maltose medium was employed:

Maltose	38 gm.
Agar-agar	13 gm.
Peptone	5 gm.
Distilled water	1,000 c.c.

For the achorion of Schönlein (favus) the following medium of Sabouraud was successfully employed:

Pure anhydrous glucose	40 gm.
Peptone	20 gm.
Agar-agar	15 gm.
Distilled water	1,000 c.c.

While cultures were not made of all our cases of ringworm, all of those obtained were identified as the *Microsporon audouini*.

While many attempts have been made to cultivate *Microsporon furfur,* the fungus of tinea versicolor, these have generally failed. One of us has succeeded in cultivating a fungus from the scales of epithelium from a patient with this disease which we regard as a doubtful culture of the fungus. It was used in this study in our endeavor to throw more light on its identity.

Antigens.—These were prepared as follows:

Twenty-four day cultures were carefully removed from the flasks of medium with due caution against tearing away portions of the medium. As the cultures are firmly adherent, this is difficult and practically impossible to avoid entirely. An entire colony was placed in a sterile mortar, and 4.25 gm. of crystals of pure sodium chlorid added. By prolonged trituration the mycelia were broken up and the homogeneous material obtained. To this were added 500 c.c. of sterile distilled water. The resulting emulsion was then isotonic, and after being shaken mechanically with glass beads, was heated at 60 C. (140 F.) for an hour, preserved with 0.25 per cent. phenol (carbolic acid) and used as antigen. Large flakes from the emulsion will settle to the bottom of the flask, and these may be discarded after pipetting off the supernatant emulsion. Under no circumstances, however, may the emulsion be filtered through paper or porcelain, as these hold back the particles of mycelia, yielding a filtrate poor in antigenic properties. The ringworm antigen employed was prepared of three different cultures of *Microsporon audouini.*

TECHNIC

A. *Hemolytic System.*—The antisheep hemolytic system was used throughout in the same amounts as in our Wassermann technic, namely, one-half the amounts used in the original Wassermann method. Washed sheep's corpuscles were made up in a 2.5 per cent. suspension and used in doses of 1 c.c.; the fresh serums of guinea-pigs were diluted 1:20 and used as complement in dose of 1 c.c.; the hemolysin was titrated each day, and two hemolytic units used.

All serums were heated to 55 C. (131 F.) for one-half hour and used in amounts of from 0.001 to 0.2 c.c. Serum, antigen and complement were incubated for one hour at 37 C. (98.6 F.), and hemolysin and corpuscles added, incubated for an hour or longer, depending on the hemolysis of the controls, and the readings made.

By titration of the hemolysin with each complement and corpuscle suspension to be used that day, the hemolytic system is accurately adjusted. The controls were the same as we used in the routine Wassermann reaction; a serum control with each serum in maximum dosage; antigen, complement, hemolytic and corpuscle controls.

B. *Antigen Titrations.* — The anticomplementary dose of each antigen was determined by titration at frequent intervals, and one-quarter the anticomplementary dose used as our antigenic dose. With these amounts, false reactions were avoided. The antigens were always preserved in a refrigerator, and their titer remained remarkably constant over periods of several months.

Table 1 shows the results of one set of these titrations preliminary to the tests proper.

TABLE 1.—ANTICOMPLEMENTARY TITRATION OF ANTIGEN*

Dose of Antigen,† c.c.	Microsporon Audouini	Achorion Schönleinii	Microsporon Furfur (?)
0.2	H.	H.	H.
0.4	H.	H.	H.
0.6	H.	H.	H.
0.8	H.	S. I. H.	H.
1.0	H.	S. I. H.	H.
1.2	S. I. H.	M. I. H.	H.
1.5	M. I. H.	I. H.	H.
2.0	I. H.	I. H.	S. I. H.

* In this table, I. H. = Complete inhibition of hemolysis; M. I. H. = Marked inhibition of hemolysis; S. I. H. = Slight inhibition of hemolysis; H = Complete hemolysis.

† Antigenic dose used: Microsporon audouini, 0.3 c.c.; Achorion schonleinii, 0.25 c.c.; Microsporon furfur, 0.5 c.c.

I. COMPLEMENT FIXATION IN RINGWORM OF THE SCALP

With the serums of twenty-three cases of tinea tonsurans, positive reactions were obtained with the polyvalent antigen of *Microsporon audouini* in eighteen, or 78 per cent. Not all of these cases were cultured to determine whether the fungus was the *Microsporon audouini* or the *Trichophyta endothrix* or *ectothrix.*

Table 2 gives the results of complement-fixation tests with a constant dose of the antigen and increasing doses of serum. The age of the patient, and the duration and extent of the disease are included.

As shown in this table, we observed complement fixation with the majority of serums tested, especially with the 0.2 c.c. dose of serum. In general, the degree of complement fixation bears some relation to the severity and duration of the infection. One case of two weeks' duration, the earliest one among our cases, yielded slight fixation with the maximum dose of serum, but the duration of the disease appears to have less relation to the degree of fixation than the severity of the infection.

TABLE 2.—COMPLEMENT FIXATION IN RINGWORM OF THE SCALP*

No.	Name	Age, Yrs.	Probable Duration, Mos.	Extent of the Disease	Reactions				Serum Control
					0.01 c.c. Serum	0.05 c.c. Serum	0.1 c.c. Serum	0.2 c.c. Serum	
1	F.	9	3	Moderate	+	++	++	++++	—
2	K.	2½†	1	Moderate	—	—	—	+	—
3	B.	7½†	6	Moderate	—	—	—	+	—
4	D.	4	3	Moderate	—	—	+	++	—
5	M. C.	3	3	Severe	—	—	—	—	—
6	D. C.	3	3	Moderate	—	—	—	—	—
7	R. C.	5	6	Severe	—	+	++	+++	—
8	W.	8	18	Very severe	+	++	+++	++++	—
9	J. M.	6	24	Moderate	—	—	+	++	—
10	C. L.	6	9	Moderate	—	+	++	+++	—
11	J. S.	..	11	Moderate	—	±	+	+++	—
12	C. S.	..	11	Moderate	—	—	+	+++	—
13	B. L.	11	18	Moderate	—	+	++	+++	—
14	S. S.	5	14	Moderate	—	—	—	+	—
15	W. H.	10	10	Moderate	—	—	—	+	—
16	C. R.	6	18	Severe	—	+	++	++++	—
17	E. G.	5	6	Severe	+	++	+++	++++	—
18	P.	3½	3	Moderate	—	—	—	—	—
19	G.	6	12	Moderate	—	—	—	—	—
20	C.	13	½	Moderate	—	—	—	+	—
21	F.	..	..	Moderate	+	+++	+++	++++	—
22	W.	..	..	Moderate	—	—	—	—	—
23	W. C.	..	..	Moderate	—	+	++	+++	—

* In this and the following tables, ++++ = total inhibition of hemolysis (strongly positive); +++ = 75 per cent. inhibition of hemolysis (strongly positive); ++ = 50 per cent. inhibition of hemolysis (moderately positive); + = 25 per cent. inhibition of hemolysis (weakly positive); ± = less than 25 per cent. inhibition of hemolysis (doubtfully positive); — = Complete hemolysis (negative).

† Months.

II. COMPLEMENT FIXATION IN FAVUS

Owing to the comparative rarity of this disease in this country, we have had the opportunity of studying but three cases. One of these was tested with the antigen of ringworm alone and the two recorded in Table 3 with the favus antigen.

TABLE 3.—COMPLEMENT FIXATION IN FAVUS

No.	Name	Age, Yrs.	Probable Duration, Yrs.	Extent	Reactions				Serum Controls, 0.2 c.c.
					0.01 c.c. Serum	0.05 c.c. Serum	0.1 c.c. Serum	0.2 c.c. Serum	
24	Z.	..	..	Moderate	—	+	++	+++	—
25	R.	10	7	Moderate	+	++	++++	++++	—

In both cases, positive reaction of well-marked degree were observed.

III. BIOLOGIC RELATIONSHIP OF MICROSPORON AUDOUINI AND ACHORION SCHÖNLEINII

The determination of the biologic relationship by complement-fixation tests of a microparasite to others of a group bearing similar morphologic or cultural characteristics depends on whether or not the organism produces a specific amboceptor and the antigen in the test possesses the distinct antigenic principle.

We have studied these relationships by two main methods: (*a*) by testing many serums of ringworm, favus and tinea versicolor infections with all three antigens, and (*b*) by interaction of the immune serums of ringworm and favus with the respective antigens.

TABLE 4.—INTERCOMPLEMENT-FIXATION REACTIONS WITH PATIENT'S SERUM

Case	Disease	Antigen	Reactions			Serum Control, 0.2 c.c.
			0.05 c.c. Serum	0.1 c.c. Serum	0.2 c.c. Serum	
26	Favus.......	Ringworm....	++	+++	+++	—
		Favus.......	+++	++++	++++	—
		T. versicolor?	—	—	±	—
25	Favus.......	Ringworm....	+	++	++++	—
		Favus.......	+	++++	++++	—
		T. versicolor?	—	++	+++	—
17	Ringworm....	Ringworm....	++	+++	++++	—
		Favus.......	+	++	+++	—
		T. versicolor?	—	—	—	—
10	Ringworm....	Ringworm....	+	++	+++	—
		Favus.......	±	+	++	—
		T. versicolor?	—	+	+	—
11	Ringworm....	Ringworm....	±	+	+++	—
		Favus.......	±	+	+++	—
		F. versicolor?	—	—	—	—
13	Ringworm....	Ringworm....	+	++	+++	—
		Favus.......	±	++	+++	—
		F. versicolor?	—	+	++	—
27	T. versicolor.	Ringworm....	—	—	—	—
		Favus.......	—	—	—	—
		F. versicolor?	—	—	—	—

Table 5 shows the results of testing a number of serums in the maximum dosage of 0.2 c.c. with each of three antigens.

TABLE 5.—INTERCOMPLEMENT-FIXATION REACTIONS WITH PATIENTS' SERUMS (Continued)

Case No.	Disease	Dose of Serum, c.c.	Antigens			Serum Control 0.2 c.c.
			Ringworm	Favus	T. versicolor?	
16	Ringworm	0.2	++++	++++	—	—
7	Ringworm	0.2	++++	++++	++	—
19	Ringworm	0.2	—	—	—	—
4	Ringworm	0.2	++	++	±	—
20	Ringworm	0.2	+	+	±	—
3	Ringworm	0.2	+	±	—	—
2	Ringworm	0.2	+	—	—	—
1	Ringworm	0.2	++++	++++	+++	—

The results may be summarized as follows:

1. With the serums of patients suffering with ringworm, complement fixation was best marked with ringworm antigen; usually to a lesser degree with favus antigen and not at all or but a slight degree with the antigen of a doubtful culture of tinea versicolor.

2. The serums of persons suffering with favus fixed complement best with the antigen of the favus fungus, to a lesser degree with the antigen of ringworm, and in one case somewhat strongly with the antigen of doubtful culture of tinea versicolor.

3. The serum of the one case of tinea versicolor failed to fix complement with any of the three antigens.

4. These reactions tend to show that a close biologic relationship exists between *Microsporon audouini* and *Achorion schönleinii*. For the purposes of differential diagnosis, therefore, it is necessary to use the serum in ascending doses with a constant dose of each antigen (as one-quarter the anticomplementary unit). Specificity is found only with the smaller doses which show fixation of complement with the respective antigen, whereas with the larger doses of serum, complement is absorbed with both antigens in a group reaction.

This relationship is further shown in the results of titrating each immune serum (prepared by immunizing rabbits) with all three antigens (Tables 6 and 7). Each immune serum fixed complement best with its own antigen, which was especially observed with the smaller doses of serum. With the larger doses this specificity was lost and the results constituted an example of a "group reaction" as seen in similar studies with the group of streptococci, diphtheria bacilli, typhoid colon group of bacilli and the gonococcus group. Granting that our antigens were of true cultures of *Microsporon audouini* and the achorion of Schönlein, respectively, the results indicate that these fungi are related and members of the same group.

TABLE 6.—COMPLEMENT-FIXATION REACTIONS WITH RINGWORM-IMMUNE SERUM

Immune Serum	Amount of Serum, c.c.	Antigens Used in ¼ Anticomplementary Dose		
		Ringworm	Favus	T. versicolor?
Ringworm...........	0.001	—	—	—
Ringworm...........	0.005	+	—	—
Ringworm...........	0.01	++	—	—
Ringworm...........	0.05	++++	+	—
Ringworm...........	0.1	++++	+++	+
Ringworm	0.2	++++	++++	++
Ringworm...........	0.2*	—	—	—

* Control.

TABLE 7.—COMPLEMENT-FIXATION REACTIONS WITH FAVUS-IMMUNE SERUM

Immune Serum	Amount of Serum, c.c.	Antigens Used in ¼ Anticomplementary Dose		
		Ringworm	Favus	T. versicolor?
Favus...............	0.001	—	—	—
Favus...............	0.005	—	+	—
Favus...............	0.01	—	++	—
Favus...............	0.05	+	++++	—
Favus...............	0.1	++	++++	—
Favus...............	0.2	+++	++++	±
Favus...............	0.2*	—	—	—

* Control.

IV. SPECIFICITY OF COMPLEMENT FIXATION IN RINGWORM AND FAVUS

Most interest in this connection refers to the possibility of the serums of syphilitic persons reacting with the fungus antigens. We have tested a number of the serums from persons with various diseases, including syphilis, and have found that they have in no instance reacted positively with the fungus antigens.

Each serum was also tested by the Wassermann reaction, three different extracts, as follows, being used: a cholesterinized extract of human heart, an alcoholic extract of syphilitic liver, and an extract of acetone-insoluble lipoids of beef heart.

The results are given in Table 8.

These results may be summarized as follows:

1. Eleven serums yielding positive Wassermann reactions reacted negatively in each instance with the antigens of the three fungi. These results indicate quite clearly that the lipophilic reagin in the blood serum of syphilitics responsible for the Wassermann reaction will not absorb complement with the fungi antigens.

2. With the serums of persons suffering with various other diseases, including four skin diseases, namely, scabies, impetigo contagiosa, eczema and acne vulgaris, the reactions with the antigens of fungi were entirely negative.

3. These results indicate that while the reactions are not highly specific with the two fungus diseases, namely, ringworm of the scalp and favus, owing probably to a biologic relationship of these fungi, complement fixation does not occur with these antigens of fungi and the serums of various other diseases.

SUMMARY

1. With a polyvalent antigen of *Microsporon audouini*, complement fixation was found to occur in 78 per cent. of persons suffering with ringworm of the scalp.

2. The serums of two cases of favus studied yielded positive reactions with an antigen of the achorion of Schönlein.

TABLE 8.—COMPLEMENT-FIXATION TESTS WITH FUNGUS ANTIGENS AND THE SERUMS OF PERSONS WITH VARIOUS DISEASES

No.	Diagnosis	Dose of Serum, c.c.	Wassermann Reaction			Fungus Antigens			
			Cholest. Alc. Extr. Human Heart	Alc. Extr. Syph. Liver	Acet. Insol. Lipoids	Ringworm	Favus	T. versicolor	Serum Control
1	Tertiary syphilis	0.2	++	+	+	—	—	—	—
2	Osteoperiostitis	0.2	—	—	—	—	—	—	—
3	Optic atrophy	0.2	++	±	±	—	—	—	—
4	Epilepsy	0.2	—	—	—	—	—	—	—
5	Eczema	0.2	—	—	—	—	—	—	—
6	Secondary syphilis	0.2	++++	++++	++++	—	—	—	—
7	Chronic laryngitis	0.2	—	—	—	—	—	—	—
8	Impetigo contagiosa	0.2	—	—	—	—	—	—	—
9	Syphilitic orchitis	0.2	++++	++++	++++	—	—	—	—
10	Secondary syphilis	0.2	++++	++++	++++	—	—	—	—
11	Epilepsy	0.2	—	—	—	—	—	—	—
12	Tertiary syphilis	0.2	++++	++++	++++	—	—	—	—
13	Syphilitic osteitis	0.2	++++	++++	++++	—	—	—	—
14	Acute tonsillitis	0.2	—	—	—	—	—	—	—
15	Furunculosis	0.2	—	—	—	—	—	—	—
16	Acute conjunctivitis	0.2	—	—	—	—	—	—	—
17	Diabetes mellitus	0.2	—	—	—	—	—	—	—
18	Pneumonia	0.2	—	—	—	—	—	—	—
19	Tertiary syphilis	0.2	++++	++++	++++	—	—	—	—
20	Pneumonia	0.2	—	—	—	—	—	—	—
21	Tertiary syphilis	0.2	++++	++++	++++	—	—	—	—
22	Chronic rheumatism	0.2	—	—	—	—	—	—	—
23	Scabies	0.2	—	—	—	—	—	—	—
24	Asthma	0.2	—	—	—	—	—	—	—
25	Acute rhinitis	0.2	—	—	—	—	—	—	—
26	Sarcoma kidney	0.2	—	—	—	—	—	—	—
27	Tabes dorsalis	0.2	++++	+	++	—	—	—	—
28	Chronic nephritis	0.2	++	—	—	—	—	—	—
29	Acne vulgaris	0.2	—	—	—	—	—	—	—

3. The degree of reaction in both ringworm and favus was observed to depend in general, first, on the severity of the infection, and second, on the duration of the infection.
4. A culture of the scales of tinea versicolor, regarded as a doubtful culture of *Microsporon furfur*, reacted weakly or irregularly with the serums of ringworm and favus patients, and negatively with the serum of a case of tinea versicolor.
5. The ringworm and favus antibodies (amboceptors) fixed complement best with their respective antigens, but with relatively large doses of serum this specificity was not observed, owing probably to a biologic relationship of *Microsporon audouini* and *Achorion schönleinii*.
6. The antigens of the fungi did not fix complement with the serums of syphilitics and that of persons suffering from scabies, impetigo contagiosa, eczema, acne vulgaris and other diseases.

SOME CLINICAL FEATURES OF THE WASSERMANN REACTION

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I. THE WASSERMANN DIAGNOSIS

The Wassermann reaction is the most satisfactory laboratory test for the presence of syphilis. Indeed, some serologists believe this reaction an absolutely accurate test for syphilis. So much one may infer from recent testimony of a competent serologist to the effect that a positive Wassermann reaction, unsupported by clinical evidence, is proof of the existence of syphilis; while a negative Wassermann reaction (in the absence of other evidence) is proof of the absence of syphilis. Such an opinion is of course an extreme one. Most of us agree that the Wassermann reaction when negative gives no information as to the presence or absence of syphilis. Yet many laboratory workers and many clinicians regard the positive Wassermann reaction, unsupported by clinical evidence, as adequate proof of syphilis.

To this opinion I must take exception. I do not feel justified in making the diagnosis of syphilis on the Wassermann reaction alone. To be sure, the positive Wassermann reaction throws the burden of proof on the clinician, and requires that he prove the patient free from syphilis. And most unfortunately, the clinician has no means of proving any one free from syphilis; so that the best he can do in deciding on the merits of any individual case is to leave the question open without asserting that the patient is any more syphilitic for having a positive Wassermann reaction than if he had a negative reaction. Such a conclusion, or lack of conclusion, is obviously a most unsatisfactory one for all concerned. Yet the following facts appear to justify it:

In the first place, the Wassermann reaction is performed in many different ways. All of them give a majority, even a large majority, of accurate results. All of them give a certain small percentage of positives with patients who have no history and present no symptoms of syphilis. But no two of them agree precisely in their results. Some 5 or 10 per cent. of persons apparently free from syphilis give positive Wassermann reactions; but the precise composition of this 5 or 10 per cent. varies with the technic employed.

In order to control possible errors, certain laboratory workers employ two or three different methods (the method varying chiefly in the antigen employed). This, while it increases the accuracy of conclusion, concedes its essential inaccuracy.

In the second place, even in the laboratory itself, the Wassermann reaction with the patient's blood is by no means the only test of syphilis; nor is it always the final test. Its findings vary inexplicably in certain cases from those of the luetin test, as well as from the lymphocyte count, the globulin test and the Wassermann reaction of the spinal fluid. The reaction is positive in practically 100 per cent. of syphilitics at about the tenth or twelfth week of untreated syphilis; but earlier than this, as well as later than this, it is not always positive.

In the third place, the reaction is known to be positive in certain diseases other than syphilis. The striking disagreement among published reports as to the influence of such conditions as tuberculosis, carcinoma and scarlatina on the Wassermann reaction is perhaps the best commentary on the uncertainty of the reaction as a sufficient criterion of the existence of syphilis. We know that with certain technics the percentage of positives in cases of carcinoma and tuberculosis is higher than with others. Indeed, we know that whatever the technic employed the use of alcohol by the patient may render his blood negative; while the presence of acidosis in a person not suffering from syphilis makes his blood positive. This last fact has been demonstrated by Dr. Richards, and is beautifully illustrated by a patient with carcinoma on whom the Wassermann reactions were done by Drs. Coca and L'Esperance. When first examined the blood was found negative; a condition of acidosis was then artificially induced and the blood became positive; finally, when the acidosis disappeared, the blood was again negative. Surely in the presence of these known causes of variation, we must confess that there may be other causes of variation as yet undiscovered. Hence the Wassermann reaction, accurate as it is in the great majority of cases, is by no means in practice, any more than it is in theory, an infallible specific reaction for syphilis.

Only recently, in conjunction with another syphilologist, I examined forty inmates of a tuberculosis hospital on whom the Wassermann reaction had been reported positive. Thirty of these showed certain or probable clinical evidence of the disease; ten of them failed to show any such evidence. The blood of these ten was once again examined. The laboratory which had examined them before (with alcoholic antigen) returned them all once again as positive (three and four plus). Another laboratory employing two different antigens obtained, with a cholesterinized antigen, four positives and six negatives; with a lipoid antigen, one positive, one doubtful and eight negatives.

Under these circumstances I should be unwilling to go on the witness stand and swear that even this last survivor of all the tests has syphilis. Moreover, it is interesting to note that the worker who obtained the ten positives assures me that all of those patients are certain syphilitics; while the man who got the one positive agrees with me that he would not be willing to condemn that one. May I, as a clinician, suggest that the latter attitude seems to me the reasonable one?

The difference in point of view is not due to failure on the part of the laboratory, but to failure on the part of the clinician. The laboratory worker in making up his statistics depends far more on the clinician than the clinician in making his diagnoses depends on the laboratory.

Since 1910, I have depended chiefly on the technic of Drs. Coca and L'Esperance for the Wassermann reaction. During this time they have compared their technic with several others, while the laboratory diagnosis has been controlled by the most careful clinical examination, supported, when necessary, by other laboratory tests.[1] The discrepancy between our conclusions and those of others who have discussed this subject lies, I repeat, rather in the clinic than in the laboratory. The average laboratory worker, human though he be, is far more precise, far more prudent in his conclusions, than the average clinician. If our differences are to be settled, this must be accompanied by the collaboration of skilled clinicians and skilled laboratory workers, studying the comparative accuracy of the various modifications of the Wassermann reaction on a large series of normal individuals as well as syphilitics.

II. THE WASSERMANN REACTION AND PROGNOSIS

The first question asked by every syphilitic is, Can I ever get well? The second, May I ever marry? Since the second question can be answered more definitely than the first, let us give it precedence.

Under the old dispensation, before there was any Wassermann reaction, the syphilitic might safely be told to marry after five years of his disease, during the first three of which he had taken treatment, and during the last two of which he had taken no treatment, and shown no lesions. (Some clinicians insisted on a longer probation, some permitted a shorter one, but we have always adhered to the five years, and it seems a fair average.) It was recognized that this clinical evidence gave no guarantee against relapse in the person of the patient himself; but the matrimonial guarantee was believed sufficient. Indeed, neither I, nor my father before me, have ever known it to fail, though a few exceptions have been alleged by such extremists as Edmond Fournier. But the Wassermann reaction shows no concordance whatever with this opinion. Though it is not positive quite so often after the first five years of the disease as during them, it is far more often viciously and persistently positive in the later years, and patients are often refused permission to marry on account of a positive reaction.

On the ground of infectiousness this is no more warrantable now that we know the Wassermann reaction is positive or negative, than it was when we had no such knowledge. We may believe that a persistent Wassermann proves the presence of the live treponemes in the patient's body; but we also believe that a negative Wassermann is no evidence whatsoever that the treponemes have departed therefrom. Yet clinical experience has long since shown that the lapse of time cures the infectiousness of syphilis (as, indeed, it controls syphilis itself) better than any treatment. Salvarsan and mercury control the outbreaks of the disease. Time and the patient's own reaction abate its tendency to infectiousness and to relapse.

Although the persistence of a positive reaction does not prove syphilis infectious, it is disquieting as a suggestion that the patient is likely to have further relapses, and that these are likely to be in the arterial or the cerebrospinal system. My own experience is not sufficient to justify any absolute conclusions in this matter. I recognize that a fixed positive reaction is singularly common in paresis. Yet in a few cases I have seen a Wassermann reaction remain fixed for many years in the face of the most violent onslaught with injections of salvarsan and mercury, the patient all the while persisting in smiling health despite his disease and despite his treatment.

In two instances I have seen a positive Wassermann become spontaneously negative, although vigorous treatment in the preceding years had failed to make it so. That these isolated cases are not necessarily faulty observations on my part is suggested by the well-known fact that occasionally a patient, on whom the diagnosis of syphilis is first made many years after its inception, has a negative Wassermann reaction, although the reaction was doubtless positive at one time, and although no treatment had been administered. In such an instance the reaction must have become spontaneously negative.

The influence of treatment, notably by salvarsan, on the lesions of syphilis and on the Wassermann reaction usually shows a definite sequence. The somatic lesions yield first, the Wassermann reaction, if it has been positive, either remains positive or becomes negative after the lesions disappear. And further, if a relapse of somatic lesions is about to occur, this is likely to be preceded by the reappearance of a positive Wassermann reaction. This train of events, though by no means inevitable, is sufficiently frequent to be depended on, except in those patients whose Wassermann reaction is negative even when their somatic lesions are active. (These usually, though not always, have a brief positive reaction, provoked within the first twenty-four or forty-eight hours following the injection of salvarsan.)

In the first year of the disease, when the active somatic lesions are almost always accompanied by a positive Wassermann reaction, the effect of salvarsan on the Wassermann reaction is often more prolonged, as well as more immediate, than the effect on the somatic lesions. I have records of no less than seven cases, in the first year of the disease, that showed relapse of somatic lesions, while the Wassermann, which previously had been positive, remained negative. Hence a persistence of the negative Wassermann reaction after salvarsan administration, in the first year of the disease, is no guarantee whatever against relapse, and no justification for discontinuing treatment.

Dependence on the negative Wassermann reaction as evidence of cure has led many observers to report erroneously a reinfection of syphilis shortly after the administration of salvarsan. The usual history of such a case is that salvarsan is administered during the primary stage of the disease, or at the appearance of the secondary lesions. All lesions disappear, the Wassermann reaction becomes negative, a varying number of months elapse, during which the patient is exposed to sundry possibilities of reinfection. Then a new chancre appears, the Wassermann reaction remaining negative. In due time the glands in the groin enlarge, the secondary lesions follow and the Wassermann reaction becomes positive, once again to be controlled by salvarsan. Clinicians reporting these cases do not envisage the possibility that the disease may have been almost, but not quite aborted, and that the apparent relapse is but a reinfection from the treponemes persisting in the chancre that appeared healed. Either interpretation is tenable. But I have twice seen patients who had received salvarsan while still in the primary stage develop delayed macular eruptions after several months had gone by. Once I have seen the chancre itself return after a few months. In one instance, chancre, glands and macular eruption all returned with due precedence some four months after the initial lesion had apparently been destroyed by salvarsan injection. This patient had not been guaranteed cured, and I am moved to believe that he told the truth in denying intervening sexual contact. (Similar observations, be it said, have been recorded by Ravaut.[2])

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[1] This report will soon be published.

Hence the best we can do for the present is to reserve judgment concerning all alleged reinfections occurring within a few months of an alleged "abortion" of syphilis by salvarsan.

CONCLUSIONS

1. A negative Wassermann is not sufficient evidence of the cure or absence of syphilis.
2. A positive Wassermann, unsupported by clinical evidence, is not sufficient evidence of the presence of syphilis.
3. A positive Wassermann does not prohibit matrimony.
4. A fixed, positive Wassermann in the later years of the disease does not inevitably point to the prospect of grave lesions.
5. A negative Wassermann after salvarsan, in the first year of the disease, does not mean that the patient is cured, or that lesions will not reappear before the reaction again becomes positive.
6. The return of chancre, glands, eruption and positive Wassermann reaction, a few months after control of the disease by salvarsan in its first few weeks, does not prove reinfection.

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[2] Ravaut: Presse méd., Sept. 13, 1913.

OROYA FEVER

SECOND REPORT *

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In a previous article,[1] we reported on our earlier investigations relating to verruga peruviana and Oroya fever. In the present communication we desire to discuss particularly the distribution and seasonal prevalence and the clinical manifestations of Oroya fever.

DISTRIBUTION AND SEASONAL PREVALENCE

Our investigations relating to Oroya fever and verruga peruviana were made in Lima, in the large hospitals in that city, and in a number of the mountain towns in the interior of Peru, particularly San Mateo, Chosica, Santa Eulalia, San Bartolomé, Surco, Cocochacra and Matucana. Cases of verruga peruviana were found in or in the vicinity of all of these towns, and in these localities cases of malaria were also common. Cases of Oroya fever were studied in which the disease had been contracted in or in the vicinity of San Bartolomé and Matucana.

At the present time our knowledge of the geographical distribution of Oroya fever probably is very incomplete. The disease undoubtedly occurs in many of the deep cleft, narrow valleys situated on the western slope of the Peruvian Andes at altitudes of from 2,500 to 8,000 feet. In these districts, as has been intimated, malaria and verruga peruviana are also very common diseases. Owing to the fact that Oroya fever, or Carrion's disease as it is frequently termed in these localities, evidently has so often been confused with other diseases encountered there, and particularly with verruga peruviana, malaria and paratyphoid fever, our knowledge of its distribution even in these regions must be far from accurate. Moreover, it would not be surprising if cases of Oroya fever were subsequently found to occur in other tropical countries. Since the parasite of the disease is difficult to detect, and its parasitic nature hitherto has not been definitely established, it would not seem strange if the disease has escaped observation in other localities where it exists. Like malaria, the disease appears undoubtedly to have a seasonal prevalence, and this appears to be more marked than in the case of verruga peruviana. Oroya fever seems to be much more prevalent in Peru from January to April, and particularly toward the close of the warm, rainy season. In 1913 more cases were observed, according to the hospital reports in Lima, in January, February and March. In April and May there were no admissions with the diagnosis of this disease at the Dos de Mayo Hospital. Our investigations in Peru were largely carried out during the months of June, July and August, which is the season in which neither Oroya fever nor malaria are particularly prevalent there. However, during these months verruga cases were certainly not uncommon, according to our observations.

Odriozola,[2] in that portion of his estimable monograph which relates to the *fièvre grave de Carrion*, in discussing the localities in which this disease is encountered, describes conditions which seem to suggest that the distribution or rather the prevalence of Oroya fever and of verruga peruviana does not always coincide in regard to time and place, any more than does the distribution of verruga peruviana and malaria.

CLINICAL FEATURES

Clinically the disease is particularly characterized by a fever which may be irregular in its course, and in severe infections by a rapid and pernicious form of anemia which results in extreme prostration and frequently in death. In severe infections the patient may not live longer than three or four weeks from the onset of the symptoms.

Descriptions in the literature regarding the clinical manifestations of this disease are often or, indeed, usually confusing, since almost invariably in these descriptions Oroya fever and verruga peruviana are described as merely different stages of the same disease. In the cases of Oroya fever which have terminated fatally, the patients are said to have died in the first stage of the disease, verruga, before the eruption has appeared on the skin. Those cases of true verruga in which an eruption develops are said to be in the eruptive stage of the disease.

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* From the Harvard School of Tropical Medicine.

[1] Strong, R. P.; Tyzzer, E. E.; Brues, C. T.; Sellards, A. W., and Gastiaburú, J. C.: Verruga Peruviana, Oroyo Fever and Uta, The Journal A. M. A., Nov. 8, 1913, p. 1713.

[2] Odriozola: La Maladie de Carrion ou la verruga péruvienne, Paris, 1898, Carré and Naud, editors.

Concomitant infections with Oroya fever and verruga peruviana may occur, just as concomitant infections with verruga and malaria commonly occur, but the diseases in both instances are independent infections. The occurrence of malarial attacks in individuals during the stage of incubation of verruga peruviana has often led to the wrong diagnosis of the febrile or Oroya fever stage of verruga peruviana, and hence to a confusion in relation to the symptomatology and other clinical features of Oroya fever as described in medical literature. Also it seems evident from the published accounts that cases of infection with paratyphoid fever which have developed verruga peruviana have been confounded with or diagnosed under the name of Oroya fever or Carrion's disease. Demonstration of this fact is given by the investigations of several observers. Thus Barton,[3] Biffi and Carbajal,[4] Tamayo and Gastiaburú[5] have isolated paratyphoid bacilli from the blood of supposed cases of Oroya fever or cases of Carrion's disease. Obviously it is possible that some cases of Oroya fever are complicated by a paratyphoid infection. It seems obvious that it is largely on account of these facts that the published clinical descriptions of uncomplicated cases of Oroya fever are meager.

From the study of the literature relating apparently to uncomplicated cases of this disease, and from our own observations on other such cases, the following conclusions have been reached in regard to its clinical features.

It is stated that the incubation period is about twenty days, and our observations are not contrary to this idea. In our opinion, however, this statement has not been conclusively demonstrated, and we were unable definitely to verify it owing to the fact that we did not have an opportunity to observe a sufficiently large number of cases from which to draw definite conclusions. The disease is usually introduced by malaise, pains and weakness in the limbs, and indisposition. Following these symptoms, slight rigors and fever appear. The febrile symptoms and rigors usually increase in severity as the disease develops. The fever is often very irregular, being usually remittent, but sometimes intermittent. The temperature fluctuates between 38 and 38.5 C. (100.4 and 101.3 F.), rarely rising to 40 C. (104.F). The fever is accompanied by a rapid, pernicious anemia, which may be complicated or not by hemorrhage, vertigo or syncope. The number of red cells may be reduced to 1,000,000 per cubic millimeter or less. The skin becomes pale, the mucous membranes assume a waxy appearance, and murmurs are heard over the heart and cervical vessels. Edema of the legs and about the joints may occur. The tongue is coated, and the bowels frequently constipated in the early stages. Later, diarrhea frequently develops. The urine is scanty, and the specific gravity high. Albumin is occasionally present. The prostration increases as the disease progresses, and restlessness, insomnia and delirium may develop. In uncomplicated cases there is no eruption on the skin. It has been assumed by some writers that an eruption in these cases appears in the internal organs. In such an opinion we do not concur, and the results obtained in post-mortem examinations do not coincide with this view. In general, it may be stated that the cases of Oroya fever are grave ones and terminate frequently in death. Mild cases which terminate favorably do, however, occur, and we had an opportunity of studying infections of this nature. In some instances the temperature sinks to normal or subnormal, and death occurs from excessive exhaustion. Death may occur within a few weeks of the onset of symptoms. Some observers report that death may occur as early as ten days from the onset of the attack, but we have not observed instances of such short duration. In the patients who recover, improvement in the severe symptoms of the disease usually begins within twenty-five or thirty days, and convalescence follows. The mortality probably equals usually from 30 to 40 per cent. Some observers, however, give a mortality of 75 per cent., and Rocha-Lima states that it may reach 98 per cent. However, Rocha-Lima's statement is not based on personal observations. The spleen is frequently enlarged, but according to the observations of others is not always palpable. The liver may be moderately swollen, and the lymphatic glands are almost always more or less enlarged. It is stated that pain in the joints is a common symptom, but we are unable to verify this statement in relation to uncomplicated cases of the disease. Pain in the long bones is sometimes complained of.

BLOOD

The most striking and characteristic feature in Oroya fever is the changes found in the blood. This has led to the disease being sometimes termed in Peru *anaemia perniciosa de los quebradas.* The development of the anemia in severe infections may be very rapid and pernicious. In one of the cases studied by us, which was described in a previous report, the red blood corpuscles numbered less than 1,000,000 per cubic millimeter, and the entire course of the disease, terminating in death, was but twenty-eight days. Monge[6] reports cases in which the number of red cells fell to 500,000 per cubic millimeter in a very short period of time, and death followed in a few days. Nucleated red cells appear early in the peripheral circulation, and rapidly increase in number. Normoblasts are most numerous, but megaloblasts are frequently seen. Polychromatophilia and poikilocytosis are particularly marked in severe infections in both erythrocytes and erythroblasts. *Many granular cells* are visible. Great variation in the size of the erythrocytes also occurs. Monge, who has apparently studied uncomplicated cases of Oroya fever, reports in severe ones 2,000 normoblasts and 200 megaloblasts per cubic millimeter. In one case the normoblasts numbered 15,300, and the megaloblasts 3,420. Leukocytosis is almost always present. A count of 20,000 is common. Differential counts often show nothing particularly striking in the proportions of the different varieties. Bassett-Smith[7] found in studying the blood from seven cases that the polymorphonuclears numbered from 65 to 70 per cent., the large mononuclears from 7 to 10 per cent., the small mononuclears from 17 to 21 per cent., transitional forms from 1 to 3 per cent., eosinophils from 2 to 4.5 per cent. Biffi[8] found the polymorphonuclears 44 per cent., eosinophils 10 per cent., large mononuclears 16 per cent., lymphocytes 30 per cent. In the severest case which we encountered, the polymorphonuclear leukocytes numbered 56 per cent., the large mononuclears 16 per cent., transitional forms 0.1 per cent., small mononuclears 12 per cent., eosinophils 0 per cent., normoblasts 9 per cent., myelocytes 2.5 per cent. Myelocytes are found present in the severe cases ranging usually from 0.5 to 2 per cent. The hemoglobin in severe infections may amount to but 15 per cent. In less severe cases of infection it may be from 40 to 50 per cent. In our first publication we gave a description of the parasite as it occurred in the red blood-cells. Other forms of it have subsequently been found in the endothelial cells. To this parasite, which we believe causes the disease, we have given the name of *Bartonella bacilliformis*.[9] In another report which will shortly appear, this organism is fully described, and the description of its life cycle in the endothelial cells considered. In severe cases, the parasites which give rise to the disease are present in the red cells in great numbers. In mild cases, however, the number of infected corpuscles is small and a long search is often necessary to disclose the parasites.

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[3] Barton: Crón. méd., Lima, 1901, xviii, No. 301, p. 193; No. 302, p. 210; 1902, xix, No. 334, p. 348.

[4] Biffi and Carbajal: Crón. méd., Lima, 1904, xxi, No. 379, p. 285; 1903, xx, No. 346, p. 149. Biffi: Arch. f. Schiffs- u. Tropen-Hyg., 1908, xii, 1.

[5] Tamayo and Gastiaburú: Gac. d. l. Hosp., 1905, ii, No. 46, p. 516. Crón. méd., Lima, 1905, xxii, No. 406, p. 335; No. 407, p. 349; 1906, xxiii, No. 429, p. 327; 1907, xxiv, No. 453, p. 321. Gac. d. l. Hosp., 1906, iii, No. 62, p. 107.

[6] Monge: Jour. London School Trop. Med., 1912, i, Part 3, p. 239.

[7] Bassett-Smith: Brit. Med. Jour., 1909, ii, 783; Lancet, London, 1909, p. 461; Tr. Soc. Trop. Med. and Hyg., London, 1914, vii, 158.

CLINICAL EXPERIENCE WITH LIQUID PARAFFIN (LIQUID PETROLATUM)

A COMPARATIVE INVESTIGATION MADE UNDER THE AUSPICES OF THE COUNCIL ON PHARMACY AND CHEMISTRY [*]

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During the past three or four years, "mineral oil" has come into extensive use in the treatment of constipation. Preparations of the Russian and the American oil, both heavy and light, have appeared on the market, but there have been no satisfactory data on which to base a selection of oil for use. Therefore, in order to obtain reliable clinical information concerning the relative efficiency of the different oils, the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association submitted samples of the oils to various clinicians for testing. The following is a synopsis of the investigation, which I have prepared at the request of the committee.

The collaborators were advised that specimens of the best obtainable light Russian liquid petrolatum, heavy Russian liquid petrolatum and an American brand of liquid petrolatum would be sent out, but that, to avoid bias, these specimens would be distinguished only by numbers or letters. The oils sent out were (1) a light "Russian" liquid petrolatum having a specific gravity of 0.860 at 20 C., (2) a heavy "Russian" liquid petrolatum having a specific gravity of 0.885 at 20 C., and (3) an "American" liquid petrolatum having a specific gravity of 0.857 at 20 C. and being markedly fluorescent. The collaborators were advised that the reports should furnish information as to size and frequency of dose, the agreeableness to the taste, the effect on the stomach, the number and character of the stools, the degree of admixture of the oil with the other ingredients of the stool, the degree of leakage of oil about the anus, and the need of other cathartic measures.

Reports have been received from Drs. L. F. Barker, W. A. Bastedo, J. B. Champion, Henry A. Christian with C. K. Drinker and F. A. Hatch, Alfred Stengel and R. L. Wilbur.

CONCLUSIONS

The conclusions to be drawn from the clinical reports are:

Dosage.—Half an ounce to 3 ounces a day. In the same patient, the same amount of each of the oils was required.

Frequency of Dose.—The same amount daily seemed as efficient when given in one dose as when given in divided doses two or three times a day.

Agreeableness to the Taste.—There is a difference of opinion in this regard. Two reports favored the heavy Russian oil. One report favored the light Russian petrolatum. But the taste of any of the samples was so slight as to be a negligible quantity after the patient had taken the remedy for two or three days.

Stomach Effects.—In about 20 per cent. of the patients, the oil produced a slight degree of nausea or tended to repeat. This is most likely in patients who have gastric stagnation with retarded emptying of the stomach. All the oils acted the same in this regard. Vomiting was reported in two cases.

Number of Stools.—To produce one or two copious stools a day the dose required varied considerably, but there was no difference noted on account of difference in the specific gravity or character of the oils.

Character of Stools.—The stools were soft, usually formed, sometimes mushy, obviously greasy. They had a peculiar odor described as sour. Their consistency varied with the dose, but was the same for the different kinds of oil.

Admixture of Oil with Other Ingredients of Stool.—Generally well mixed, but from time to time a patient would have a stool of free oil. This occurred with all varieties of oil. (It necessitated reduction of the dose, and if then the bowels were not active enough, the administration in addition of cascara, aloin, etc.)

Leakage About the Anus.—A disagreeable feature complained of by many is that when they take enough of the oil to move the bowels, there is sufficient leakage from the anus to keep the neighboring skin continually in a greasy condition, and sometimes to stain the clothes. That there is any difference in this regard between the oils has not been determined.

In the reports, one clinician noted no differences that were not negligible. Another was slightly in favor of No. 2 (heavy Russian) as regards taste. A third reporter did not make comparative tests. A fourth is slightly in favor of "B" (heavy Russian) as regards taste and general suitability. All of the findings of this investigation are based on hospital cases. A fifth reporter favored No. 1 (light Russian petrolatum). He considered it the most prompt in its effect, the most uniform in results, and the most prone to give a satisfactory admixture of the oil with the other materials. The difference, however, from the other oils was not marked. Another reporter noted no special differences.

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[8] Biffi: Bol. Acad. de med. de Lima, 1903, iii, 2.

[9] Dr. P. W. Bassett-Smith has since our first publication in THE JOURNAL kindly called the attention of one of us to the fact that the name Bartonia first suggested by us, has been used as a generic one in botany to include two species of Gentianaceæ. This use would not necessarily preclude its employment in zoology, although a duplication of names in botany and zoology is certainly highly undesirable. On investigation, however, we have found that the use of Bartonia as a generic name has been applied by Cossmann (Paris, 1901, p. 293) to an eocene mollusk, *Bartonia canaliculatum*; hence we have changed the generic name to Bartonella, retaining the specific one, bacilliformis (*Bartonella bacilliformis*).

[*] This investigation was made under the auspices of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association. At the request of the committee, Dr. W. A. Bastedo has prepared this critical review of the reports made by those who collaborated in this investigation.

SUMMARY

The results of this clinical investigation appear to warrant the conclusion that so far as therapeutic results are concerned the differences in the action of the three varieties of liquid petrolatum, namely, light Russian liquid petrolatum, heavy Russian liquid petrolatum and American liquid petrolatum, are too slight to be of importance. Hence the choice between the lighter and the heavier oils, and between the Russian and the American is an open one, to be determined not by therapeutic differences, but by palatability, dependent on the degree to which the refinement of the oil is carried out. The U. S. Pharmacopeia, the revision of which is now nearing completion, no doubt will furnish standards which will insure a suitable product. From the findings of the foregoing report it would appear that a satisfactory standard might permit the use of either Russian or American oil, if suitably refined so as to be as nearly as possible devoid of odor and taste.

57 West Fifty-Eighth Street.

A STUDY OF THE COMMERCIAL PREPARATIONS OF BACILLUS BULGARICUS

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During the past few years many physicians have advocated the administration of living cultures of *Bacillus bulgaricus,* in order to change beneficially the intestinal flora. It is asserted that the large amount of acid produced by this organism from the fermentation of the various sugars is detrimental to the growth of other intestinal organisms, especially of the putrefactive group. This organism was at first given in the form of a fermented milk, but is now dispensed chiefly in the form of pure cultures, either in liquid or in tablet form. The potency of these cultures was the object of this investigation.

These cultures are sold either as liquid cultures—broth or whey—or in the dried form as tablets. The majority of the manufacturers simply label their product as living cultures of *Bacillus bulgaricus,* but do not state how many living organisms are present. Some state the number of bacilli present, but add that the count was made by some staining method (Wright), which method does not differentiate between living and dead organisms. As the therapeutic agent is the acid produced by the metabolism of the living organism, any count which does not differentiate between living and dead organisms is of no importance.

The *Bacillus bulgaricus* grows with difficulty on the usual laboratory mediums, but grows readily on mediums containing milk or whey. It ferments glucose and lactose readily, producing a large amount of acid, and the resulting acidity gradually kills the organism. It is this factor of acid production which is one of the principal causes of the rapid deterioration of the liquid preparations.

The names of the preparations tested are not given because not sufficient of each was tested to say which were uniformly bad or good. In the liquid preparations, those giving the highest counts were all obtained direct from local manufacturers from freshly prepared lots. The same preparations bought in the open market in other parts of the country would undoubtedly show much poorer results. In the more complete investigation which is being continued, I hope that results will be more definite, and that I shall be able to publish the names of those manufacturers who control their product so that it is uniformly good, and also to expose those whose preparations are practically inert or heavily contaminated.

In order to make an exact count of the number of living organisms in the preparation, it is necessary to plate them in suitable mediums in varying dilution, and after incubation to count the number of colonies. As the different strains of *Bacillus bulgaricus* vary in their cultural characteristics, each specimen was plated on four different mediums, and the highest count obtained on any one of the four mediums is the count that is listed. Plates were examined after three days' incubation at 40 C. (104 F.). The final count was made after five days' incubation.

The following plating mediums were used.

1. Veal infusion glucose agar.

To the veal infusion were added 2 per cent. agar, 2 per cent. glucose, 0.5 per cent. salt and 2 per cent. peptone, and the medium was titrated to 1 per cent. acid to phenolphthalein.

2. Whey glucose agar.[1]

Whey was obtained by adding glacial acetic acid to hot milk. To this were added 2 per cent. peptone, 2 per cent. agar and 1 per cent. glucose, and titrated to 1 per cent. acid.

3. Whey glucose calcium carbonate agar.[2]

This was the same as the previous medium, with the addition of a few drops of sterile powdered calcium carbonate in water just before plating.

4. Veal infusion whey glucose agar.

This was the same as the first medium, but after cooling to 45 C. (113 F.), one-fourth the volume of warm whey was added. This whey was prepared by rennet coagulation of certified milk. The coagulated milk was heated in the Arnold, and the whey thus obtained was filtered through paper and then sterilized.

Each specimen was also inoculated into the following tube mediums:

1. Litmus milk.
2. Whey.
3. Peptone glucose whey.
4. Veal infusion broth.

These tube inoculations served to control the plating mediums. In no case in which similar organisms were not obtained on one of the plating mediums was a growth obtained in any of the tubes.

The following specimens were tested:

1. Liquid. Obtained direct from manufacturer, freshly prepared lot. Broth culture in small bottles. Not dated.

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[1] Heineman and Hefferan: A Study of Bacillus Bulgaricus, Jour. Infect. Dis., 1909, vi, 304.

[2] Bendick: The Use of Calcium Carbonate in Solid Media for the Differentiation of Sugars Fermenting Bacteria, THE JOURNAL A. M. A., Oct. 21, 1911, p. 1343.

Aug. 7, 1914, count showed 5,200,000 organisms per cubic centimeter. August 24, count showed 1,400,000. September 1, count 1,200,000. October 13, 1,200. October 30, specimens were sterile.

2. Liquid. Direct from manufacturer. Freshly prepared. Not dated. Direct plating, August 7, showed 40,000,000 per cubic centimeter, but by September 1, specimens were sterile on three separate examinations.

3. Liquid. Large bottle containing clear fluid with a heavy white precipitate which was readily miscible. Bought from retail druggist, Nov. 24, 1914. Was dated with date of manufacture, Oct. 24, 1914, with statement that it was good six weeks from date. Direct plating showed 5,600,000 per cubic centimeter. No contaminations. Organism grew vigorously and fermented dextrose rapidly. By December 9, the count had fallen to 1,700; December 31, to 124.

4. Liquid. Broth culture in small bottles. Bought from retail druggist, Nov. 24, 1914. Expiration date, Dec. 28, 1914. Immediate plating showed a count of 6 per cubic centimeter. December 7, specimen was sterile on three separate examinations.

5. Liquid. Bought direct from manufacturer, Nov. 26, 1914. Expiration date, June 30, 1915. Broth in small bottles. Direct plating, one bottle gave a count of 12,400 per cubic centimeter, but another bottle gave a count of only 2 per cubic centimeter. Dec. 31, 1914, one bottle gave a count of 95; another was sterile.

6. Liquid. Broth culture in small bottles. Left by demonstrator at physician's office. Expiration date, Jan. 23, 1915. Direct plating, Dec. 1, 1914, showed specimens sterile on three separate examinations.

7. Tablet. Bought from wholesale druggist, Dec. 3, 1914. Expiration date, Feb. 1, 1915. Tablets disintegrated rapidly in water, forming uniform mixture. Direct plating gave a count of 21,600 per tablet. December 15, a count of 10,200 was obtained.

8. Tablet. Bought from retail druggist, Dec. 9, 1914. Expiration date, April 23, 1915. Direct plating gave a count of 120 bacilli in a tablet.

9. Tablet. Bought from wholesale druggist, Dec. 3, 1914. Expiration date, March 1, 1915. Plating showed the tablets to be loaded with contaminations, a count of 59,200 other organisms being obtained. A moderate number of the *Bacillus bulgaricus* were present. Direct examination under the microscope of a tablet crushed in water showed the presence of numerous short motile bacilli, also a few long non-motile bacilli. Milk fermentation was atypical, digestion of the milk occurring with gas fermentation.

10. Tablet. Bought from retail druggist. Not dated. Told would keep indefinitely. Immediate plating showed numerous molds and a few short motile bacilli. On broth a heavy pellicle was obtained, and the milk was digested and gas formation occurred. No bacilli of the bulgaricus type were isolated.

11. Tablet. Bought from wholesale druggist, Oct. 19, 1914. Expiration date, Nov. 28, 1914. Immediate examination gave no growth on the plates, or in the milk, whey or broth.

12. Tablet. Obtained direct from manufacturer. Freshly prepared. One tablet gave a count of 105. Another 62. Three tablets were sterile.

Heineman and Hefferan[1] have demonstrated that *Bacillus bulgaricus* occurs normally in the feces of cows, horses and human beings; also in market milk and in soil. There is consequently no significance in the ingestion of a few bacilli in the commercial preparations. To be effective, the organisms should be present in large numbers. The commercial preparations should therefore be more carefully controlled, especially during transit and storage. I would suggest the following changes:

1. Preparations should be marked with the average number of living organisms to the cubic centimeter as determined by cultural tests, and also what percentage of these will be alive after definite intervals. This method would allow of accurate dosage, and give useful information. A count by the Wright method or a Gram stain is of no significance.

2. Preparations should be marked with the date of manufacture with a statement of how long the preparation is potent. The present custom is to date with an expiration date, which method is a temptation to an unscrupulous dealer, and does not tell the age of the preparation.

3. Preparations should be kept in a suitable ice box as much as possible from the time they leave the manufacturer till they reach the patient. Cultures should therefore be obtained either direct from the manufacturer or from a few well-controlled supply depots.

CONCLUSIONS

1. The majority of the preparations of *Bacillus bulgaricus* contain only a small fraction of the number of living organisms that the manufacturers represent. Many of the preparations as sold at retail are sterile, containing no living bacilli of the bulgaricus type or any other living organism.

2. The majority of organisms as seen in a stained specimen are dead and hence are of no significance.

3. Broth cultures obtained direct from the manufacturers are the best preparations.

4. Tablets are useful if the product is to be conveyed a considerable distance. Some preparations of the tablets are potent, many are sterile, and some are heavily contaminated.

I desire to acknowledge my indebtedness to William H. Park, director of the laboratory of the New York Department of Health, for the material and for many valuable suggestions in the course of this work.

A MONILIA FOUND IN CERTAIN CASES OF SPRUE

PRELIMINARY NOTE

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SAN JUAN, P. R.

In the course of the study which I am making of certain cases of sprue in the laboratory of the Institute of Tropical Medicine and Hygiene, my attention has been called to the presence, in the four cases in which I have made cultures from the *inflamed* tongue, of a Monilia not described by Castellani and Chalmers,[1] or mentioned by Bahr.[2] My failure to find the organism in apparently normal tongues of convalescents from sprue has prompted me to write this preliminary note. In one case culture from the uninflamed tongue was negative, although the patient was desperately ill from one of the intestinal localizations of the disease so familiar to those who know sprue clinically. Only when the intestinal symptoms subsided and the tongue became inflamed was a successful growth obtained. This case has shown repeated and severe desquamatory inflammation of the tongue, so that persistent effort would have possibly demonstrated the organism in the deeper layers of the epithelium, even during the quiescent period. In the few normal tongues which I have examined I have not yet found this Monilia.

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[1] Castellani, Aldo, and Chalmers, A. J.: Manual of Tropical Medicine, Ed. 2, New York, William Wood & Co., 1913.

[2] Bahr: Researches in Sprue, 1912-1914, Jour. Trop. Med. and Hyg., July 1, 1914.

Of the four positive results obtained, three were in children; one 12 years of age, in whose family mother, father and sister all give histories of recurrent exacerbations of sprue; one a child of 2½ years, whose clinical picture leaves no room for doubt and whose mother also gives a history of intestinal fermentation and inflammation of the mouth; and the third in an infant of 15 months, whose symptoms resemble thrush but in whom a tentative diagnosis of sprue must be entertained, because of the four months' duration of his stomatitis in spite of treatment, his repeated fermentative "indigestions," and the fact that his mother suffered from an aphthous stomatitis with violent inflammation of the tongue just previous to her baby's illness. The fourth is a typically severe case of sprue in a high official of the federal government, diagnosed by me over a year ago. On going North for a vacation he received a confirmation of that diagnosis from a former practitioner in the far East and now an instructor in tropical diseases in one of our Northern schools.

The salient features of the work so far done are as follows: Plate cultures were made of scrapings from the inflamed dorsum of the tongue, and the Monilia was thus isolated and planted in plain bouillon. After several days' growth the various mediums were infected. In the case of all liquid mediums, two tubes were incubated together, one infected and the other not. In the case of the sugar bouillons, three tubes were used for each; one fermentation tube, one litmus tube and one without litmus. This was done in order to determine accurately by titration the changes in reaction due to the culture. The method of standardization recommended by the Bacteriological Committee of the American Public Health Association was strictly followed. The mode of procedure was as follows: After fifteen days' incubation at 34 C. (93.2 F.) the two infected tubes of a given sugar medium were examined to see if contamination by bacteria had occurred. Then the infected medium of the fermentation tube was titrated, 5 c.c. to 45 c.c. of distilled water, using as an indicator 1 c.c. of a 0.5 per cent. phenolphthalein solution in 50 per cent. alcohol. The titration was carried out at boiling point and the same was repeated with the cold culture. The litmus tube was used, not so much for a control as for the purpose of watching the varying reaction during the course of the fifteen days' incubation. Care was taken accurately to titrate the mediums before infection, and all three tubes were filled with the same lot of mediums.

Litmus Milk.—Rendered alkaline; no clotting or decoloration.

Glucose Bouillon.—First few days strongly acid, with production of much gas. Thereafter litmus tube generally becomes blue and gas diminishes to a mere bubble. Titration, however, still shows neutral or a slight increase in the acidity over control.

Levulose Bouillon.—Much gas and is rendered acid. Gas diminishes to a mere bubble at the end of fifteen days.

Maltose Bouillon and Beerwort.—Same as for levulose.

Galactose and Saccharose Bouillons.—Rendered acid.

Lactose, Mannite, Dulcite, Dextrin, Raffinose, Arabinose, Inulin, Erythrite, Amygdalin, Asparagin, Isodulcite and Plain Bouillon.—All lose decidedly in acidity save mannite and dextrin, which are little changed as compared with the control.

Blood Serum.—On this a scanty, almost invisible white growth was distinguished. There was no brownish pigmentation, nor was the medium liquefied.

Gelatin.—On this there was a growth all along the stab, with fine brush-like villous extensions. It failed to liquefy gelatin even after two months.

Dunham's Peptone Solution.—On this no indol was produced, nor was the reaction altered.

Bouillon.—The growth on this was characterized, not precisely by the formation of a pellicle, but by a heavy collar at the surface, the result of the adherence of mycelial elements to the glass. This collar at times became a coriaceous pellicle resembling a false membrane, which in due time fell to the bottom of the tube, another being formed at the surface later on. In all bouillon cultures the medium remained clear, save for the sputum-like shreds and deposit.

Solid Mediums.—The growth on these is creamy white. At first the colonies are round, almost hemispherical, with even border sharply delineated from the mediums, but later these colonies rapidly run together and form a thick creamy white layer on the whole surface of the agar. All the sugar agars were sown, as well as potato and carrot, plain and glycerinized.

The growth on glucose, levulose, maltose and saccharose agar is exceptionally heavy, in the order named. The organism grows well on very acid mediums, even to + 4.5.

A hypodermic injection of a few drops of a ten-day culture in plain bouillon into the muscular tissue of the tongue killed a large rabbit in seventy-five hours. After forty hours, severe diarrhea came on with the production of much gas. Death occurred from general mycosis. The necropsy was performed one hour and a half after death, approximately, by myself and Dr. W. W. King of the United States Public Health Service, member of this institute. A necrotic spot was found in the tongue at the site of the injection, and a high grade of congestion of lung, liver and kidneys was demonstrable. All the serous cavities were found normal. A heavy creamy white mucoid coating was found on the stomach and small intestine. Cultures were made under the usual strict precautions against contamination, from liver, spleen, kidney, lung, the muscular tissue of the tongue, and the heart's blood, on Sabouraud's glucose agar slants, and pure cultures were directly obtained without the appearance of any other organism. As the animal accidentally received 1 or 2 gm. more by mouth, owing to the leaking of the syringe, cultures were made from the mucoid layer coating the stomach and small intestine, and an abundant growth was recovered. The details of the biologic study of this Monilia, together with feeding experiments in monkeys and other laboratory animals, will appear in a forthcoming report of the Institute of Tropical Medicine and Hygiene of Porto Rico.

The Ideal Commonwealth.—Our youth will dwell in a land of health, amid fair sights and sounds and receive the good in everything; and beauty, the effluence of fair works, shall flow into the eye and ear like a health-giving breeze from a purer region, and insensibly draw the soul from earliest years into likeness and sympathy with the beauty of reason.—Plato, Book III, of the Republic.

NITROUS OXID GAS ANALGESIA IN OBSTETRICS

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CHICAGO

For many years chloroform and ether have been used to alleviate the pains of women in labor. Valuable as these agents are when deep anesthesia is required for the carrying out of operative procedures, they have not proved satisfactory as analgesic agents. It administered in small quantities at the commencement of a strong uterine contraction, the patient does not usually inhale sufficient to abolish pain. She is then apt to be irritated and is certain to insist on being given a larger quantity. If a sufficient amount be administered to satisfy the woman, the continued repetition gradually inhibits the power both of the uterus and of the accessory muscles, so that labor is unnecessarily prolonged, and, possibly, the life of the fetus endangered. Physicians have, therefore, been accustomed to employ these drugs very sparingly, restricting their use to the very end of the second stage, during the painful passage of the head through the vulva. The results of the administration at this time are also uncertain. If delivery be rapid the woman may not be able to inhale sufficient to abolish her consciousness of pain. If it be slow she may take too much and weaken the muscular powers, thereby prolonging labor and, often, necessitating forceps delivery. It is not surprising, therefore, that the medical profession has long been hoping that a more satisfactory method of relieving the pain of labor would be found.

Within recent years a new procedure, "made in Germany," has been introduced, consisting in the administration of scopolamin and morphin early in labor. In spite of the publicity which has been given to this so-called "twilight sleep" method by the lay press it has not found favor with the great majority of leading obstetric authorities in Europe or America. They are too well aware of the uncertain effects produced by the mixture and of the complications which may be caused, to adopt it. For many generations obstetricians have avoided the use of morphin, except in rare cases, because of its bad effect on the child and its interference with muscular activity in the mother. Scopolamin is variable and uncertain in its action and very often produces marked excitement in the woman, which may greatly interfere with carrying out of a clean technic. The lay press has not referred to the mental disturbances which have been produced nor have they made known that in that part of Germany where the procedure originated, a large number of damage suits have been instituted in the courts against prominent physicians, because of various ill-effects alleged to be due to "twilight sleep."

The advocates of the German method insist that it must not be used by the ordinary practitioner but by obstetric experts. Ordinary hospitals are not even considered suitable. Special chambers with luxurious and harmonious esthetic equipment, isolated and soundproof, doctors and nurses wearing noiseless slippers, speech carried on in quiet whispers—these are the accessories especially recommended for obtaining success with scopolamin-morphin.

We doubt the possibility of reaching success with it in an American city.

About ten years ago, in my service at the Presbyterian Hospital, I began to use nitrous oxid gas in certain complicated obstetric cases: for example, version, forceps-delivery, vaginal cesarean section and repair of lacerations. Later, I performed several abdominal cesarean sections in cases in which ether and chloroform were contra-indicated.

It was noticed that the administration caused no ill-effects to mother or child, did not affect the strength of uterine contraction or lead to post-partum inertia. On a number of occasions I employed the gas during the passage of the head through the vulva, in normal cases, relieving the patient's sufferings without interfering with the progress of delivery.

In recent years, as a result of the employment of nitrous oxid gas (usually with 3 per cent. of oxygen), as well as of local anesthesia, ether and chloroform have been much less employed than formerly.

During the past year a new departure has been made in the maternity service of the hospital, namely, the use of nitrous oxid in labor to abolish the pains caused by uterine contractions. Careful observations have been made by different members of the staff, including Drs. Lynch, Heaney, Davis, McCullough, Hixon and Wells. We are in entire agreement as to the complete success of the method in relieving women of the sufferings of childbirth. The technic is very simple. Usually the administration is begun when the patient complains of second stage pains, though it may also be used during the first stage. In the majority of cases, however, gas is not necessary during the greater portion of this period. It is very important that women should not be educated to regard labor as a terrible experience, something akin to a surgical operation, necessitating the free use of anesthetics. The large proportion of patients suffer comparatively little severe pain. Very often the support and encouragement of a judicious physician or nurse have a marked effect in subduing nervousness and distress. It is to be hoped that the new movement in obstetrics will not result in destroying courage, self-reliance and endurance in our women. The apparatus is that ordinarily employed by dentists.

It has been found best to use a small nasal inhaler, the mouth of the patient being uncovered. The gas-bag attached to the tank is kept under low pressure and, as the pain begins, the patient is instructed to breathe quietly, keeping her mouth closed. Ordinarily, light inhalation suffices to produce the analgesic effect. It is not necessary to cause asphyxiation or jactitation, which are due to the inhalation of large quantities of gas. Expulsive efforts on the part of the patient are not interfered with, to any appreciable extent. As soon as the uterine contraction begins to subside the inhaler is removed and the patient is again conscious. This procedure may be kept up for hours if necessary. A nurse or assistant may be instructed so as to carry out the administration satisfactorily.

Pure nitrous oxid gas or gas with oxygen (3 per cent.) may be employed. The former is, perhaps, most universally applicable. It may be used in private houses as well as in hospitals, the necessary apparatus being small, compact and easily transported.

The amount of gas varies according to the duration of painful contractions, and the cost is therefore a variable factor. In the Presbyterian Hospital the ordinary small gas-tanks have chiefly been used, the expense of administration being comparatively small. In hospitals where large tanks may be employed, the cost may be reduced about one-half. Of course it is necessary to be careful not to waste the gas.

From our experience in the Presbyterian Hospital, this method is recommended as the safest and simplest method of conducting painless labor.

Its advantages are as follows:

1. The apparatus is simple, easily transported, and may be used by any practitioner.
2. Deep anesthesia is not necessary.
3. There are no ill-effects to mother or child.
4. The strength of uterine contractions is not diminished, no matter how long the administration of the nitrous oxid gas is continued.
5. The administration is under control all the time, and can be stopped at any moment. This is a very decided advantage which is not possessed by any method which necessitates placing a patient under the influence of drugs administered internally.

NITROUS OXID GAS ANALGESIA IN OBSTETRICS

FRANK W. LYNCH, M.D.
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Nitrous oxid in anesthesia has become most popular during the last few years. Gas and ether machines have undergone marked improvements. Their use in surgery and dentistry is well-nigh universal. Analgesia has supplanted anesthesia in a considerable field of surgical work. Analgesia is obtained during the first stage of anesthesia. It is the stage of *Dammerschlaf,* the threshold of sleep, in which stimuli to the skin cause no mental impression, and consciousness is disordered.

Since July, 1913, I have used gas for long-continued analgesia in my obstetric work. The method should not be confounded with the old and well-known use of gas during the past generation, given to deeper stages of anesthesia about the time of actual birth. The results obtained by this new method have been astonishing. There is freedom from pain. There are no bad effects for mother or child. The gas in analgesic doses appears to stimulate the uterine pains. There is no doubt of the patient bearing down more energetically when under the influence of the drug. I made mention of the method at the Michigan State Medical Society at Flint, Sept. 1, 1913.[1]

I have used the method for more than one hour in thirty-four cases. Analgesia has been maintained from the latter part of the first stage, or from the time when the pains became severe; and all have said that pain was negligible and practically nil. There are twenty-five primiparas and nine multiparas in the series. Analgesia was continued in thirty-four cases more than one hour; in thirty-two cases more than two hours; in twelve cases more than three hours; in four cases more than four hours, and in one case more than six hours. Three cases were terminated with forceps with the gas carried to surgical degree. They were all primiparas, one of 39 years, one of 35, and one of 25, in whom there was transverse arrest of the head. There was no case of inertia, post-partum hemorrhage or shock.

The method is suitable for patients at their homes or in the hospital. Any gas machine with a Hewett stopcock permitting the admixture of oxygen and gas will do. I use a small portable machine, which holds four tanks. The best results are obtained with a nose-piece such as is used by dentists, but the ordinary mouth-piece will answer. I have hitherto started the treatment when the pains have become severe enough to occasion complaint. Pure nitrous oxid gas is turned full on at the beginning of the pain, and the patient is told to breathe deeply but rapidly through the nose. Five or six respirations suffice to produce analgesia, even in the presence of the uterine contraction. The nose-piece is now placed over the mouth. The patient is told to breathe through the mouth, and analgesia is maintained by admixing oxygen with the gas until the end of the pain. This process is repeated with each pain. The percentage of oxygen varies from nothing to 10 per cent. It is more difficult to maintain analgesia with the mouth-piece without wasting much gas, since the depth of anesthesia is now more difficult to control. Oxygen must be used more freely. When the head distends the perineum, the anesthesia is carried to the surgical degree, and the color of the patient is controlled with oxygen. Separate tanks of gas and oxygen are best and cheapest. Their small size admits of easy transportation. Separate tanks permit the variations of percentage of oxygen. With these small tanks the method costs from four to five dollars per hour, varying with the duration and frequency of the pains and the skill of the operator.

Gas is the ideal drug for conducting labors. It is the most volatile of anesthetics, acts most quickly, and its effects pass away most rapidly. It is practically free from danger even when continued for analgesia of many hours. This may be evinced from the work of Woodyatt.[2] A number of dogs were sensitized to toxins by removal of their glycogen. No animal thus treated survived ten minutes of chloroform narcosis. There were marked changes in the secretions of the dogs anesthetized for the same period with ether. Yet two hours of anesthesia with nitrous oxid caused no demonstrable tissue injuries, and the changes in the secretions were trivial or nil. Theoretically, therefore, we may expect to continue analgesia throughout the entire labor, with trivial resultant injury. Nor does the drug cause, as chloroform, lesions of the fetus, since there is no resultant tissue asphyxia on which are dependent the visceral and hemorrhagic diseases of the new-born (Graham).[3]

This method is not original with me, and was first seen July 12, 1913, in a case which I saw with my colleague, Dr. Junius Hoag. The patient was the daughter of Mr. Clark, a maker of instruments for anesthesia, who had sought at his own risk to try in his family the method which his demonstrators were teaching for dentistry. The analgesia was maintained for four hours, with anesthesia to surgical degree, for purpose of delivery. The method was also independently developed by Dr. Heaney about six months later, who tells me he has a considerable series of cases about ready for report. He is likewise most enthusiastic over the method.[4]

I am of the belief that this will make the use of scopolamin-morphin unnecessary in the treatment of private cases. Its ease of administration and freedom from danger speak volumes for its popularity. Nor is the technic complicated or the good results limited to one man. Unlike the Freiburg method, it is adapted to work in the private home, and is devoid of its many dangers.

104 South Michigan Avenue.

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[1] Lynch: Jour. Michigan State Med. Soc., 1914

[2] Woodyatt: Tr. Soc. Exper. Biol. and Med., March, 1914.

[3] Graham, Evarts: Jour. Exper. Med., April, 1[illegible]

[4] Personal communication to the author.

LEAD POISONING FROM THE USE OF COSMETICS

TWO CASES OF THE NEUROMUSCULAR TYPE

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Many monographs have been written concerning industrial lead poisoning. It is quite generally understood that file making and jewel polishing, the making of cheap kitchen ware and the polishing of cut glass, are notoriously dangerous trades in Europe. In the United States, workers who rub with sandpaper the newly painted bodies of railway coaches, carriages and automobiles, the laborers in white lead factories and the makers of storage batteries or electrical accumulators, because of non-protection, are in more danger of lead poisoning than are those who work at the same trades in Europe.

It is my desire to call attention to a form of lead poisoning other than industrial, which I believe to be quite common, and which in my opinion impairs the health and lessens the efficiency of a not inconsiderable number of our female population.

There are three channels by which lead may enter the body: the skin, respiratory passages, and alimentary canal. Of these three channels of absorption the former is least and the latter the most important. However lead enters the body, it may impair the structure and disorder the function of any of the organs and tissues. It destroys the blood cells, causes arteriosclerosis, accumulates in the liver causing fatty degeneration of the hepatic cells, hinders the normal intestinal peristalsis, but its baneful influences are exercised principally on the kidneys and the cerebrospinal nervous system. It causes a parenchymatous, followed by an interstitial, nephritis, seriously impairing the function of the kidneys.

The nervous system is especially prone to be affected by lead. The most dangerous and fatal form of lead poisoning is the cerebral type, which has been termed lead encephalopathy. Epileptiform convulsions constitute the most prominent symptom. Death may follow very shortly the onset of such convulsions, or the patient may recover to be totally blind or deaf. Neuroretinitis may occur without any concurrent kidney disease. This is another serious and grave type of plumbism which may be accompanied by epileptiform convulsions. Hysterical manifestations may develop from lead poisoning, as may a condition resembling general paralysis of the insane, delirium, coma, and hemiplegia. Under the influence of lead intoxication, the pyramidal cells in the ventral horns of the spinal cord may degenerate giving symptoms of poliomyelitis. A type of muscular incoordination which has been designated pseudotabes is of not uncommon occurrence.

Of the various neurologic manifestations of plumbism, the neuromuscular type is the most common. There are two factors operating to produce this condition. First, the direct presence of the lead; second, the retention in the system of toxins because of the hypofunctioning of the excretory organs, for which the lead is responsible. The pathology has not been definitely determined. Some believe it to be central and of the nature of poliomyelitis, others contend that it is entirely peripheral and of the nature of a neuritis. The most common form of the neuromuscular type is symmetrical wrist-drop due to paralysis of the extensors of the wrists. The patient usually experiences pain or numbness in the muscles of the forearm and leg and generally a few attacks of colic, and suddenly or gradually loses the power of extending his wrists. It is usually bilateral and atrophy generally follows.

While simple wrist-drop with paralysis of the extensors is the most common form of neuromuscular type of lead palsy, other types do not infrequently occur. The scapulohumeral type involving the shoulder girdle and humerus, occurs occasionally. All the muscles of the shoulder, arm, forearm, wrist and hand may be paralyzed symmetrically. The muscles of the lower extremities are not commonly paralyzed as the result of lead intoxication, but a peroneal type of paralysis occasionally occurs. The muscles chiefly affected are the long extensors of the toes and the peroneals, the anterior tibials escaping. This type of paralysis is more frequently met with in children than in adults. In the more chronic types of lead intoxication, the paralysis, occasionally, either slowly or quickly extends to all the muscles of the limbs, hands, feet and even of the trunk. In these cases the symptoms are commonly those of multiple neuritis. The paralysis is either accompanied or followed by muscular atrophy, the muscles usually giving the reaction of degeneration. It is commonly preceded by colic, numbness of the fingers and toes and may be accompanied by pains in the extremities. In one type of generalized form, the deep reflexes are exaggerated and the extensor toe phenomenon is present. This is called the amyotrophic type, but ordinarily the deep reflexes are lessened or absent and the extensor phenomenon is not present.

The following case reports are chiefly interesting because of the manner of entrance of the lead into the system.

CASE REPORTS

Case 1.—B. F., aged 22, single, seamstress, consulted me in 1912 concerning a paralysis of the upper extremities. Family history of no special interest. Past history, usual diseases of childhood; generally healthy. Had been a seamstress for some years. Had no serious illness. All functions had been normal up to a few months previously. Present illness began two months previously. Had numbness and tingling sensation of fingers for a short period. Onset of paralysis was gradual. Atrophy accompanied paralysis. Was not painful and was not preceded by colic.

Examination.—Well developed young woman; actual and apparent age about the same; no disturbance of functions of special sense organs. Thoracic and abdominal organs apparently in a normal state, excepting for slight constipation. Trunk and lower extremities normal in every particular, slight blue line on gums; muscles of shoulders, arms, extensors of wrists and hands paralyzed and atrophic. Very slightly decreased appreciation of prick and tactile stimuli over these regions.

Diagnosis.—Lead intoxication with a combination of scapulohumeral and wrist-drop type of neuritis. Patient alleged she had had no chance of getting lead into her system in any manner. I suspected that holding lead dyed thread in the mouth while sewing was responsible. On further investigation I found that the patient had for some years been using a cheap face powder called "Flake White." The "Flake White" as sold for this purpose is a levigated subcarbonate of lead and is rubbed on the face with a moist sponge.

Treatment.—The use of "Flake White" was discontinued, iodids and salines administered, and the patient recovered within a few months.

Case 2.—I. H., aged 24, widow, housekeeper, consulted me in 1913. Complaints: Generalized pain, paralysis and muscular atrophy. Family history of no special interest. Past history disclosed the usual diseases of childhood; generally well until the last three or four years. Her husband lived but a short time after marriage. She gave vague history of what she called rheumatism. Had similar attack three years previously, from which she recovered. Three months previously the patient was operated on for appendicitis, or rather was operated on because of pains in abdomen supposed to be appendiceal in character. Operation did not reveal appendicitis. The cause of pain was not determined at that time.

Present illness began three weeks previous to the above date. First with cramping in abdomen, pain and numbness in extremities. Extreme constipation; loss of appetite; hands and arms became weak. After weeks' duration the pain became worse in shoulders and arms and this was quickly followed by complete paralysis. The first symptom of paralysis observed was wrist-drop, which steadily grew worse; legs became weak and painful, until the patient was scarcely able to walk.

Examination.—Woman about 25, of the brunette type, apparently poorly nourished and somewhat emaciated. Appeared to be quite anemic. Organs of special sense functioning in normal manner. Tongue heavily coated; heavy blue line on gums. Muscles of entire upper extremities showed atrophy; tender to deep pain stimuli, and deep reflexes absent. Some lessening of response to the tactile and affective components of sensation, superficially. Reaction of degeneration present. Muscles of lower extremities generally somewhat wasted, much lessened in power, skin slightly anesthetic and analgesic; increased response to deep pain stimuli. Deep reflexes decreased. Arteries slightly sclerotic, blood pressure 160 and 105. Respiratory organs normal; red blood cells 4,040,000; white 12,800; hemoglobin 60 to 70. Examination showed many stipple cells. The urine contained lead.

Diagnosis.—A generalized form of lead neuritis. Wassermann reaction of the blood was positive; patient denied venereal history, and no other evidences of syphilis could be obtained. It is worthy of note, however, that it is not unusual to get a positive Wassermann in lead intoxication. This was obviously lead intoxication with generalized lead neuritis.

A question again arose as to how the lead got into the system. Diligent inquiries revealed no known means by which lead had been absorbed or consumed. When asked about face powder used the patient said she had been using "Flake White" since a small child and that her mother and grandmother had used the same form of face powder. An examination of a sample of powder in possession of the patient showed it to be levigated subcarbonate of lead. I assumed that the lead had been absorbed from the skin as the result of the use of this powder.

Treatment.—Patient was given ox-gall, iodids and salines, the ox-gall for its biliary stimulating properties, the iodids to dissolve the lead out of the tissues, and the sulphate of magnesia and soda to combine with such lead as might enter the gastro-intestinal canal and prevent its reabsorption. The patient improved very slowly, but when she passed from under my care was much improved though still not well. I have learned that she has continued to improve.

These patients represent two rather extreme types of lead intoxication due to skin absorption from a cosmetic. This face powder is and has been for years in general use, and it is my opinion that as a result of its use, many women suffer from lead intoxication of varying degrees, causing in them anemia, debility, constipation, etc., and perhaps nephritis.

I believe many cases of general nervous debility, some of insanity and perhaps other types of paralysis are caused by the use of cosmetics containing lead. I am convinced that lead absorbed in this manner is an important contributing factor in impairing the health and lessening the general efficiency of a considerable number of women.

Many of the vague and not understood abdominal pains are due to this cause. I believe abdominal sections are done because of lead colic, and some appendices removed for the same reason. Lead causes abortion and doubtless some of the unexplained abortions could be accounted for in this manner. The public should be warned against the use of "Flake White" as a cosmetic, and its sale for this purpose should be prohibited.

Rialto Building.

REPORT OF CASE OF TETANUS

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CHICAGO

The following case is reported to add corroborative testimony to the efficacy of intraspinal administration of tetanus antitoxin as outlined recently by Park and later by Irons.

History.—Harry K., aged 11, a schoolboy, on November 10 was struck by an automobile while crossing the street, sustaining several lacerations. One, a deep gash above the ankle, was closed with about twenty silkworm-gut sutures. The other laceration, at a slightly higher level, was superficial.

November 19, the boy complained of a stiffness of the jaw which was easily apparent on examination.

November 20, a few slight convulsions were noticed.

November 23, no treatment given until this date, when 1,500 units of tetanus antitoxin were given intramuscularly.

November 24, the boy was unimproved and the dose previously given was repeated intramuscularly. The case was now referred to me by the family physician and the patient sent to the hospital.

Examination.—This showed a pronounced case of tetanus. The jaws were firmly set; a typical risus sardonicus and marked opisthotonus were present. Convulsions occurred about every fifteen minutes and were precipitated and intensified by the slightest noise.

The wound on the leg presented a dirty, ulcerating inflammatory appearance.

Urine: Acid; specific gravity 1.026. No albumin, sugar or casts. No blood count was made. Temperature, 101.4 (rectal), pulse, 120, respirations, 24.

Treatment.—Patient was taken to the operating room and anesthetized with gas and ether. Fifteen hundred units of antitoxin were given by the intraspinal route. The same amount was given intravenously. During the balance of the day no change was noticed in his condition. At the end of the day he had spasms quite frequently, necessitating the use of chloroform.

November 25, another injection of 3,000 units of antitoxin was given both intraspinally and intravenously. Spasms were quite marked during the day, and, as on the previous days, morphin and chloroform were administered at intervals. Toward evening the history notations indicate that the spasms became easier and shorter in duration. Pulse noted as stronger though rapid. Temperature, 101.2 (axillary). Pulse, 126.

November 26, spasms easier. Tendency to rest but still disturbed by spasms of short duration.

November 27, patient much better. Could take sponge bath with ease. Temperature 99.8, pulse 108.

November 30, the boy could turn head and body with comparative ease. Was disturbed only occasionally by twitching. Trismus much improved. Temperature, 98 (axillary); pulse, 88.

December 2, no evidence of twitching recorded. Could use back rest.

December 8, patient was allowed to be taken home, convalescing nicely. When he left the hospital the stiffness of his jaw, which was the last symptom to commence clearing up, was practically gone. He has progressed uneventfully since this date.

In connection with this case it is to be noted that the period of incubation was nine days, which thus classifies it as an acute case. It was allowed to reach an extreme state with convulsive seizures occurring every fifteen minutes. Forty-five hundred units of tetanus antitoxin were slowly injected intraspinally according to the usual technic. Forty-five hundred units were given intravenously, which is somewhat below the amount usually deemed necessary. No antitoxin was given by the subcutaneous or intramuscular routes except the 3,000 units given before the patient was brought to the hospital.

The local treatment consisted in exposing the wound to a continuous stream of oxygen for thirty-six hours. Boric acid and alcohol dressings were used to counteract the local infection. Free use was made of cathartics. During the first two days in the hospital sedatives in form of morphin and chloroform were at intervals used. It would appear that in the intraspinal administration of tetanus antitoxin we have an agent that has robbed lockjaw of its despairing terrors.

7301 Kenwood Avenue.

HYDROCEPHALUS

THE POSSIBLE RELATION OF A CONTRACTED PELVIS TO HYDROCEPHALUS DEVELOPING AFTER BIRTH

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While it is recognized that an obstruction of the foramen of Magendie or the aqueduct of Sylvius will cause hydrocephalus, yet, in searching the literature at my command I have failed to find an instance in which reference is made to delivery through a contracted pelvis as a possible cause of these lesions. For the present I wish to eliminate the developed congenital type of hydrocephalus and consider only those cases which appear normal at birth, but soon thereafter show abnormal cephalic development.

The pathologic findings of an advanced hydrocephalic, that is, the overdistended ventricles and their sequelae, require no reference in this connection, but the primary factors, that is, the occlusion of the foramen of Magendie or the aqueduct of Sylvius, do furnish special interest. The method of their occlusion, whether it be of an infectious or a mechanical nature, should be accepted as the primary factor for consideration.

I find but one instance[1] in which hydrocephalus was produced in the laboratory by mechanical obstruction, but the results from these tests were sufficient to demonstrate that a blocking of the ducts hindered a normal communication between the ventricles; that practically no absorption occurred in the ventricles, but on the contrary, a secretion of fluid which in time filled the isolated chambers to overdistention.

Accepting the foregoing, the possibility of a contracted pelvis causing abnormal compression of the child's head sufficient to occlude, if not obliterate the duct, would not be out of reason. The idea may seem far fetched, however, when the anatomic relations of the structures are considered. Not infrequently a child appears normal after a difficult labor, but soon thereafter portrays symptoms of hydrocephalus.

Lues and tuberculosis are usually considered as the causative factors when the condition occurs, but we are beginning to learn that these diseases are not responsible to the extent that was formerly believed. In fact, repeated complement-fixation tests[2] speak against the assumption of syphilis as a common etiologic factor.

An instance in which two successive children developed post-partum hydrocephalus, when both parents were free from stigmata of disease, but pelvic mensuration of the mother revealed a contracted pelvis, is of interest in this connection. A third child, delivered through a cesarean section, showing no abnormal symptoms several months later, lends additional interest, and is sufficient to serve as a forcible argument for the possibility of a contracted pelvis being the prime causative factor in many cases of post-partum hydrocephalus.

History.—Mrs. D., aged 29, well nourished; past history negative. Same is true of husband. Patient the mother of four children, two living and two dead. The first child was an undersized babe at birth, now eight years ago. Although the labor was very difficult, still it terminated normally. The child is to-day healthy in all respects.

The second child, born three years later, reached full term. The patient says that it was a very difficult and prolonged labor, terminated by instrumental means. The child appeared normal at birth, but shortly thereafter began to develop hydrocephalus. It lived three years. It was my privilege to see this little patient shortly before he died. I regret not having secured a photograph, as the case showed such a pronounced state of development. No complement-fixation test was made.

The third child was delivered under most difficult circumstances. He lived but a short time; at birth there were no symptoms of cephalic enlargement, but it was well marked at death.

A fourth pregnancy reached full term. In the meantime a pelvic mensuration had revealed a contracted pelvis. The patient had been in labor twelve hours when I was called. I found the os well dilated, and fortunately the sac was still intact. No engagement had taken place. She was removed to the hospital where I performed a cesarean section and delivered a normal child. The steps of the operation need not be mentioned here. The mother made an uneventful recovery. The child is to-day, four months later, apparently healthy and shows no signs of any abnormal cephalic development.

It would be rather presumptive on my part to infer that this child would have developed hydrocephalus, as did the two previous children, as there is of course no proof to substantiate this assumption, but the coincidence of the contracted pelvis and the fact that the last child is healthy and normal is sufficient to point toward the possibility of the previous labors being the prime causative factor in the two former cases. Be that as it may, the case is undoubtedly of sufficient worth to serve as a guide for other similar cases, if not of argumentative worth.

All the ingenious methods of von Bramann[3] and others to establish a communication between the two ventricles, are far from satisfactory. Here as elsewhere, if prevention is possible, it is far better than cure. The operation of cesarean section, when performed by a surgeon ready to cope with conditions as they arise, is not a formidable one, and is truly justifiable in later pregnancies when there is a contracted pelvis, and hydrocephalus has developed after a previous difficult labor. In case the hydrocephalus has developed in utero, the operation ought to be the procedure of choice as the barbaric operation of craniotomy is truly a more hazardous one, so far as the mother is concerned, than is cesarean section. As to the method employed, whether it be the classical section or the extraperitoneal, is of course optional with the surgeon. Both methods have their advantages.

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[1] Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, The Journal A. M. A., Dec. 20, 1913, p. 2216.

[2] Knoepfelmacher, W.: Hydrocephalus, chronicus internus, congenitus und Lues, Med. Klin., Dec. 6, 1909, No. 49.

[3] Von Bramann: Puncture of the Corpus Callosum for Hydrocephalus, Deutsch. med. Wchnschr., Sept. 23, 1909.

REPORT OF FOUR CASES OF FOREIGN BODY IN THE AIR PASSAGES OR ESOPHAGUS *

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Case 1.—*Jackstone in the Larynx.*—F. B., boy, aged 19 months, got a "jack" in his throat a month before admission to the Children's Memorial Hospital. He was playing on the floor when his mother picked him up to change his diaper. As she picked him up he grasped a couple of jackstones with which the other children were playing, and as his mother laid him on his back he dropped them. One of them went into his mouth. The mother took him at once to a hospital where some physician, probably an intern, assured her that there was nothing in the child's throat. He passed a stomach tube and told the mother that if the jack were in the throat the stomach tube would shove it on into the stomach.

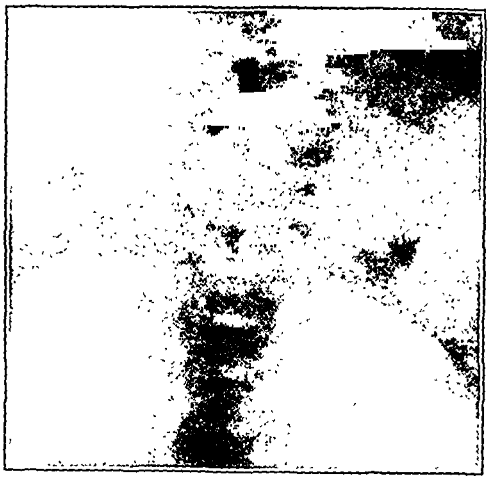

Fig. 1.—Jackstone in the larynx (Case 1).

The child's difficulty in breathing and swallowing continued so that she returned with the child to the hospital the next day. This time she says she was told that the child in all probability had a "cramp." She next took the child to the family physician, who treated the child for bronchitis.

After a month he was brought to the Children's Memorial Hospital, where a roentgenogram was taken and the jack located. During the four weeks that the foreign body had remained in the child's throat he could eat very little.

On admission to the Children's Memorial Hospital his condition was fair. Breathing was difficult. The eyes, ears and nose were negative. In the neck there were palpable glands and distinct tenderness around the trachea. Examination of the chest showed difficulty in breathing, particularly on inspiration. The lungs and abdomen were negative. The roentgenogram showed the jack lying opposite the fourth, fifth and sixth cervical vertebrae (Fig. 1).

The patient was anesthetized with ether, and Bruening's speculum for direct laryngoscopy in children was introduced. On account of swelling at the entrance to the larynx, there was considerable difficulty in seeing the foreign body, although it could be easily felt with the speculum. Several attempts at grasping it proved unavailing; the speculum was removed and the foreign body grasped with a long pair of hemostats guided by the sense of touch. It was firmly imbedded and required some little manipulation and force to dislodge it. Only slight bleeding followed. The jack was so lodged that one of the ball-shaped ends was directed downward and lay within the lumen of the larynx. Another arm was directed backward, and lay between the arytenoid cartilages. The third arm lay crosswise within the lumen of the larynx, but above the vocal cords. The swelling of the aryepiglottic folds caught this arm, which was directed crosswise, and made the removal difficult.

The patient did well following the operation. He had a little fever for about three days. At one time he had so much difficulty in breathing that intubation was considered, but this cleared up without the necessity of intubating, and the patient was allowed to go home. He was somewhat hoarse when he cried, but otherwise he seemed well. Two days later he was brought back to the hospital with great difficulty on inspiration. I attempted to intubate but without success. The patient's condition in spite of inhalations of oxygen being very bad, I did a hurried tracheotomy without anesthesia. The day following the tracheotomy, the temperature reached 103, but declined soon afterward to 100. The next day it was normal. The tracheotomy tube had been in place one week and I was just ready to remove it when I was taken sick with scarlet fever and did not see the patient for six weeks. Meanwhile the tracheotomy tube had not been removed. When I removed the tracheotomy tube after it had been seven weeks in the trachea, the tracheal wound closed at once and no air could enter. The trachea was deformed by the long presence of the tube so no air could enter by the natural way. It was necessary to reinsert the tube at once to prevent death from asphyxia. Again I attempted intubation, but for some reason could not enter the larynx. It was necessary to enlarge the tracheotomy wound, but this could not be done with the tracheotomy tube in place on account of the flange on the tube. Accordingly the end was cut off a linen catheter the size of the tracheotomy tube, and this piece of catheter inserted instead of the tracheotomy tube. The tracheotomy wound was then enlarged and a very small linen catheter passed upward through this wound through the larynx until it could be drawn out of the mouth. The intubation tube was then threaded on this small catheter as a guide and shoved down until it reached the tracheotomy wound, when both catheters were removed and the tube pushed down past the wound. The wound was then allowed to heal, and in a week's time it was completely healed. The intubation tube was then removed, and the patient having no further difficulty, was discharged cured.

Among the interesting features of this case are:

1. The length of time a foreign body of this size remained in the larynx without causing alarming symptoms.
2. The ease of diagnosis by means of the Roentgen ray.
3. The difficulty of intubation.
4. The difficulty of establishing normal respiration after removal of the tracheotomy tube.

Case 2.—*Bronchoscopy with Removal of Tack from the Right Bronchus.*—C. A., boy, aged 9, deaf-mute, was said to have swallowed a nail about 7 o'clock in the evening. Immediately afterward he had a coughing spell which lasted for a half hour. At 10:30 p. m. he was brought to the Children's Memorial Hospital and roentgenograms taken showing both frontal (Fig. 2) and lateral views of the chest. The pictures showed a foreign body resembling a nail 1 inch long with a rather large head lying behind the sixth rib, 1 inch in front of the vertebral column, and ¼ inch to the right of the margin of the sternum. The shadow showed the point uppermost.

I saw the boy about 1 a. m. of the following morning and had him prepared for immediate operation. He was resting quietly at the time. He was anesthetized with ether and a low tracheotomy done, after which a suitably sized bronchoscopic tube was introduced and the nail found in the right bronchus lying with its point uppermost and caught in the tissues. I succeeded in getting the point dislodged and within the point of the bronchoscopic tube, where it was easily seized and withdrawn as far as the tracheotomy wound. Here the forceps slipped off, but fortunately my assistant caught the tack, as it proved to be, and prevented its slipping back into the trachea until I could grasp it with a pair of hemostats and remove it.

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* Presented by invitation before the Chicago Pediatric Society, Nov. 13, 1914.

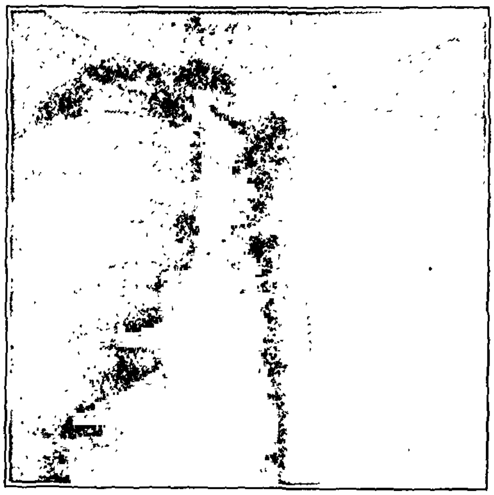
Fig. 2.—Tack in right bronchus (Case 2).

During the operation the trachea was stitched temporarily to the skin on either side with silk. At the close of the operation the stitches were cut and the parts allowed to fall back into their normal position.

The wound was packed lightly with sterile gauze, and the patient put back to bed. There was very little bleeding from the bronchus or trachea, and very little traumatism produced.

The foreign body was found to be an upholsterer's brass headed tack 1.8 cm. long, with a head 8 mm. in diameter. No cause for the deaf-mutism could be found in the history. He has one brother who is also a deaf-mute. Patient is said never to have given any sign of hearing.

Following the operation the course was uneventful, and the patient was discharged from the hospital in two weeks with the wound healed.

This case was suitable for upper bronchoscopy, and under similar conditions in a hearing patient I would do an upper bronchoscopy; but in this case, because we could not communicate with the patient, nor he with us, it seemed advisable to follow the method most certain to succeed at first trial.

The fact that the tack caught in the tissues with the point uppermost might have led to serious trouble in a careless or forcible removal.

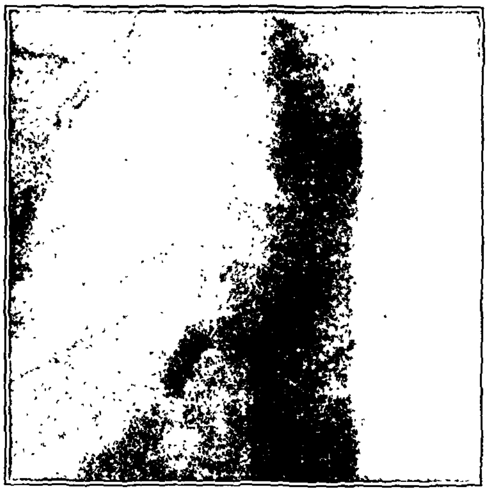
Fig. 3.—Brass arrowhead in left bronchus (Case 3).

Case 3.—*Arrowhead in a Secondary Division of Left Bronchus over Ten Months.*—W. T., boy, aged 10, aspirated the brass tip of a toy arrow, Jan. 2, 1914, and immediately had a severe coughing spell. From this time on he suffered with cough. On two or three occasions he had fever and was confined to bed for two or three weeks at a time.

He was treated by various physicians for bronchitis, tuberculosis, etc. About the last of April his father took him to Germany in the hope of finding some one who could relieve his troubles but found no one. Finally after his return to Chicago he was taken to the Children's Memorial Hospital, where a roentgenogram was taken (Fig. 3) and the diagnosis made by the patient as soon as he saw the picture. He pointed out the shadow of the arrowhead before any one else could say a word.

Following the correct diagnosis, I was called on to remove the foreign body. I attempted it at first under ether by the upper method. As soon as the bronchoscope passed the vocal cords, the patient stopped breathing, and it was necessary to remove the tube before he again began to breathe. When breathing had been resumed, another attempt was made to do upper bronchoscopy, but again he stopped breathing, and it was necessary to desist.

A low tracheotomy was then done and lower bronchoscopy attempted, but the patient did so poorly under ether that it was necessary to stop and wait for more favorable circumstances. A tracheotomy tube was inserted, and after a week an attempt was made under local anesthesia. The left bronchus and all its divisions and subdivisions that could be found were inspected and probed, but nothing found. Again it was necessary to stop.

Following this attempt, the patient's temperature ran up to 103, and it looked as if he were going to have an attack of pneumonia; but in a few days, under the administration of guaiacol carbonate, his temperature declined to normal, and a week after the second attempt, a third attempt was made under local anesthesia. This time the patient was given a hypodermic injection of 1/10 grain of morphin sulphate with atropin before the operation. At 10 per cent. solution of novocain was first sprayed into the trachea and later applied with a swab of cotton. The bronchoscope was then introduced, but as soon as it entered the left bronchus he had a severe coughing spell, and this cough could not be controlled until I had painted this area several times with a 5 per cent. solution of cocain. Finally, the coughing being controlled, all the secondary and tertiary divisions of the left bronchus were examined and nothing found. Finally, the bronchoscope being moved a short distance to the point where coughing had been excited, a small area of granulation was seen at the bottom of the tube. I attempted to brush this aside with a probe, and thought I saw the entrance to a secondary bronchus that I had not seen before. I passed a probe into this secondary bronchus, and thought that it touched a metallic body. The patient said he heard it touch. I then passed the expanding forceps into the same bronchus, opened it and withdrew it only to find that I had nothing. After swabbing out the bloody mucus I saw the edge of the arrowhead. I had drawn it partly out of the secondary bronchus and into the main bronchus, where it was easily seized and removed. Following the removal the patient's temperature rose 0.4 degree for a day. The second day it was normal and he was allowed to be up. At the end of five days the wound was so far healed that he was allowed to return home.

This case shows how a foreign body may cause pneumonia and symptoms of tuberculosis. It indicates how in chronic cases of lung disease, a roentgenogram or bronchoscopic examination may clear up the diagnosis. If the foreign body is opaque to the Roentgen ray, the picture is enough. If it is not opaque to the Roentgen ray, a foreign body may be found on bronchoscopic examination.

It is remarkable that a foreign body of this size, shape and composition did not make more lung symptoms. It must have acted as a ball valve, and the signs of atelectasis should have been present. They were not found.

This case shows well how in a difficult case of foreign body in the bronchi it is well not to keep up the examination too long. It is better to stop short of danger to the patient and to repeat the examination at a later date. It also shows the advantage of local over general anesthesia. A roentgenogram showed that the arrowhead had moved between the time of taking the first picture and the third examination. It looks as if the foreign body had been touched by the bronchoscopic tube in one of the first two examinations and pushed a little farther down.

Case 4.—*Open Safety Pin in the Hypopharynx.*—A boy, aged 19 months, got an open safety pin into his throat. He was brought to the Children's Memorial Hospital and a roentgenogram taken (Fig. 4). The pin could not be seen in the throat on ordinary inspection, but it could be felt on passing a finger down the pharynx. I seized the point with a long hemostat and disengaged it, guided by the sense of touch. Then while my finger rested on the point of the pin, the patient retched and forced the pin into the oropharynx, where it was easily removed.

This was an easy case for operation. The only danger was from the point of the pin. As soon as the point was disengaged, the patient did the rest. This pin caught at the first point of narrowing of the esophagus, and because of the point catching in the tissues, it could not be regurgitated. I am always anxious about these cases because the trauma to the esophagus may give rise to emphysema or to septic infection of the mediastinum, as in a case I saw with Dr. Friedberg, in which a general practitioner had attempted to push a bone on into the stomach with the result that he pushed it through the wall of the esophagus, where the septic infection caused the child's death.

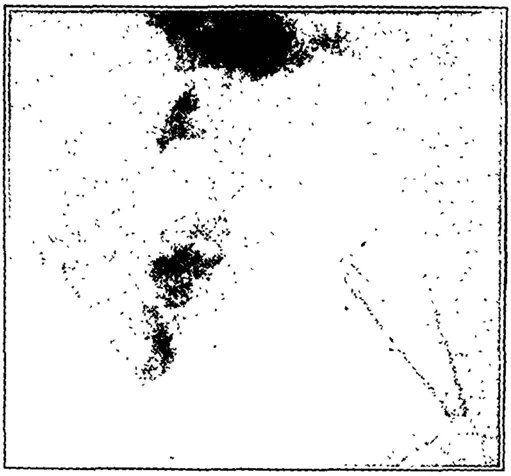

Fig. 4.—Open safety pin in hypopharynx (Case 4).

Taken as a whole, these cases show the very great aid to diagnosis given by the Roentgen ray. They also show what can be done by bronchoscopic methods in a class of cases that not many years ago were almost without means of relief.

122 South Michigan Avenue.

Rochester Life Conservation Plan.—Rochester has inaugurated a health campaign which it calls the "Live a Little Longer" plan. It originated with the board of education and consists at present in the employment of a nurse and a physician, who are to give in the various school buildings of the city two lectures each week for six weeks on all sorts of health and life conservation topics. The lectures are to be given in the afternoons after regular school hours and are open to all persons over 18 years of age. The plan has the support not only of the education body, but of the energetic chamber of commerce and other civic organizations and has the endorsement and active cooperation of the local representatives of the life insurance companies represented in Rochester, who have already sent out circular letters calling attention to the well planned course of instruction in health matters following the approval of the companies of the plan. It is hoped by the originators of the plan that it may become general throughout the country.

A SPECIMEN OF CONGENITAL INGUINAL IMPLANTATION OF THE VERMIFORM APPENDIX*

H. WINDSOR WADE, M.D.
NEW ORLEANS

It need scarcely be emphasized that the vermiform appendix may, on account of its free mobility, be found in a great variety of positions within the abdominal cavity. If it has not become somewhere adherent, the position in which it is observed at necropsy is doubtless more or less a matter of accident, dependent on the conditions within the cavity. The range of positions in which it may be found under conditions of pathologic immobilization is remarkable, and covers nearly the entire peritoneal cavity. Besides its more frequent locations about the cecum and in and about the pelvis, it not rarely is found within a hernial pouch, either inguinal, femoral or "retroperitoneal" in one of the pericecal fossae.

Of the types of true hernia in which the appendix may be involved the inguinal occurs most frequently. In this variety the organ may be found in the inguinal canal or the scrotum either as a part of or, more rarely, as the only viscus in, the hernial content. The readily available figures which bear on these conditions indicate the occurrence of cecal and appendicular hernias as about 1.65 per cent. of all hernias. In Coley's[1] analysis of 2,200 cases of hernia in which operation was performed at the Hospital for Ruptured and Crippled, no femoral appendicular hernia was found, and but seventeen cases (or 0.77 per cent.) of inguinal hernia in which the appendix or appendix and cecum was present. In but ten of these instances was the appendix alone present in the hernial sac.

Descriptions of hernias in which the appendix is found seem largely confined to the occurrence of a displacement into an inguinal evagination of the peritoneum, which sac occurred either congenitally or appeared in later life as a result of those influences ordinarily responsible for hernia formation. The congenital type is apparently not very rare and may, it has been asserted, be diagnosed in infants and children through the presence of the cord-like appendix in a thin-walled sac. Only the very rare hernias of the fallopian tube or of the ureter have to be excluded.

Whether the condition be congenital or acquired, however, the appendix in such a case is found, together with the cecum if present, within a peritoneal sac which may be entirely patent or more or less obliterated by inflammatory exudate or adhesions. Under such circumstances the hernial content as a rule retains, either in whole or in part, its original serous covering. This form of hernia is therefore but a less common variation of the ordinary inguinal hernia.

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* From the Laboratories of Pathology, Charity Hospital of Louisiana.

[1] Coley: Keen's Surgery, Philadelphia, 1912, iv, 78.

The primary causes of appendicular hernia are usually held to be the presence of an unobliterated pouch of the peritoneum, together with an abnormally movable cecum. The so-called "sliding" hernia of the cecum is a separate condition and is due to a more or less gradual retroperitoneal displacement of this structure.

Of evidently different causation, and of interest from both the anatomic and the embryologic points of view, is the following instance of what apparently was congenital implantation of the appendix in the inguinal canal, in which no trace of a hernial sac could be discovered:

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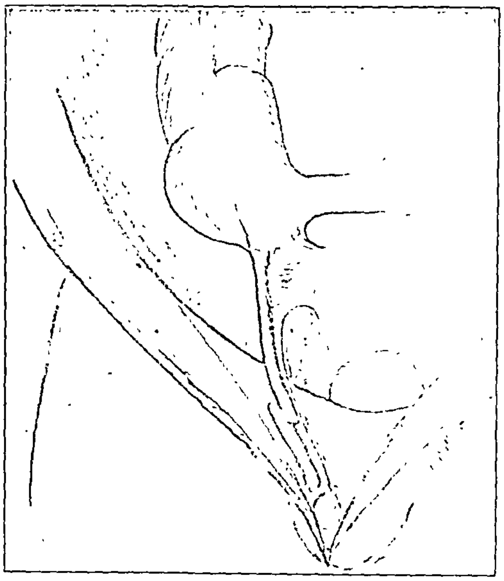
At necropsy, beside confirmation of the clinical diagnosis, the following interesting condition of the appendix was observed: On routine inspection of the cecum for the purpose of determining the position and condition of the appendix, this organ seemed at first to be absent. From its usual point of origin, however, and continuous with the anterior longitudinal muscle band, was seen a somewhat flattened, thick, white cord of tissue which ran directly downward for a distance of 6 cm. to the internal abdominal ring, covered throughout by a fold of the peritoneum. External examination of the inguinal regions and scrotum revealed only bilateral enlarged lymph nodes. No evidence of sac or other abnormal subcutaneous structure could be detected. On reflection of the skin and fascia over the inguinal canal and scrotum, the appendiceal band was traced downward to end in a slightly bulbous tip, a short distance above the testicle.



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The presence or absence of any peritoneal sac or evagination was carefully observed during the dissection. From the abdominal cavity there was no sign of downward extension of the serosa. At the internal ring the peritoneum was reflected smoothly from the appendiculo-inguinal fold posteriorly, laterally to the right and anteriorly. In the canal there was neither remnant nor trace of the funicular process of the tunica vaginalis or of a subsequently formed peritoneal diverticulum. The adventitia of the appendix was of the normal, rather delicate connective tissue to be found in the subcutaneous tissues of infants. There was no evidence of scar tissue following inflammation. About the testicle the tunica vaginalis was normal.

That part of the appendix which lay in the inguinal canal and scrotum measured 5 cm. in length. It presented a sharp Z-shaped bend so that, when freed and straightened, this infraperitoneal portion measured 6.5 cm., making a total length of 12.5 cm. from the cecum to the tip of the appendix. The organ was large, rather flattened, and the lumen was patent very nearly to the end.

COMMENT

Had the condition described above been primarily due to the congenital presence or subsequent formation of a peritoneal sac, all trace of such a structure was lost, and nothing could be found that would indicate the obliterating process. No undue fibrosis was present, and aside from the kinking, there was no apparent interference with the development or nourishment of the appendix, such as might be expected following obliteration of a hernial sac.

Even when there is a peritoneal diverticulum for the reception of an abdominal viscus, the appendix cannot ordinarily be included in the hernia content unless the cecum is abnormally mobile or exceptionally low. In the present case the cecum was snugly suspended in its usual position, and a distance of 6 cm. intervened between it and the internal abdominal ring.

In a hernia of the appendix, this organ with its mesenteric band, with or without the cecum, drops or is forced into the sac. In any event it is, certainly at first, completely covered by peritoneum. The appendix herein described was, strictly speaking, retroperitoneal, being covered on but three sides by a fold of this membrane.

In view of these facts, it is held probable that the appendix was, during the descent of the testicle, in some manner included in the downward movement, and that it was drawn as a part of the spermatic cord through the internal abdominal ring, and was left without serous covering in the inguinal canal by the normal obliteration of the funicular portion of the tunica vaginalis. In this way may be explained its great length as compared to the age of the individual, its inguinal migration with a normally situated and supported cecum, its relation to the peritoneum and to the vas deferens, and its position and appearance in the inguinal canal.

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New Instruments and Suggestions

A MICROSCOPIC TEST FOR PASTEURIZED MILK (PRELIMINARY PAPER)

W. D. Frost, Ph.D., Dr.P.H., Madison, Wis.
Associate Professor of Agricultural Bacteriology, University of Wisconsin

METHODS FOR DETECTING HEATED MILK

Numerous methods have been proposed to test quickly and simply whether or not a given sample of milk has been heated. The methods suggested fall into three main groups:

1. Those based on the changes which the protein undergoes when milk is heated. These have not proved applicable in practice.

2. Those which depend on the presence of oxidizing enzymes in milk. Of these, Storch's test is generally regarded as most satisfactory. This, however, as is well known, can be used only on milk heated from 78 to 80 C. (172.4 to 176 F.). It cannot, therefore, be applied to milk heated to the temperatures employed for pasteurization in this country.

3. A microscopic test devised by myself and described in a paper by Frost and Ravenel in 1911 (A Microscopic Test for Heated Milk, *Proc. Am. Assn. Med. Milk Commissions*, May, 1911, p. 127).

Two features of this method interfered with its usefulness. One was the difficult technic and the other was the fact that safranin clotted the milk unless added with the greatest care. So far it has been possible to avoid this danger only by diluting the stain, and in this case the action of the dye is largely neutralized.

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The original idea that I had in mind was that by means of an *inter vitam* stain it would be possible to color the living leukócytes, as I assumed them to be in raw milk, in one way, and the dead cells, if such they are, in the heated milk, in another way. The technic was suggested by that employed in making opsonic index determinations. That it is possible, with proper experience, to differentiate pasteurized from raw milk by this means, is still my firm conviction.

Further study, however, has shown that it is possible greatly to simplify the technic, and at the same time emphasize the differential characters. It has also appeared that the principle of *inter vitam* staining need not be considered. The attempt can rather be made to stain the dead cells deeply and characteristically in the heated, and contrast these with the unstained or at most slightly tinged cells in the raw milk. It thus appears that the method here described may as well be considered a new method as a modification of the former or previously described method.

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One part of a saturated aqueous solution of methylene blue is added to 5 parts of the milk to be tested. The dye should be added to the milk slowly to prevent the possibility of the stain coagulating the milk, for when this coagulation occurs the test is rendered unreliable. The method of adding the stain, which I have usually followed, is to put the milk in a small flask or beaker and add the dye slowly from a small pointed pipet while the milk is kept in motion by a rotary movement of the vessel.

The stain should be left in contact with the milk for from fifteen to thirty minutes, and then the sediment of the stained milk is precipitated in a centrifuge and spread on a glass slide. When the smear is dry it is ready for examination.

Probably the most convenient way of collecting the sediment is by means of the Stewart-Slack tubes, although it can be done quite readily in the tubes of a centrifuge such as are ordinarily used for collecting urinary sediments. In this case from 5 to 15 c.c. of the milk can be used, and this might be desirable in separated milk and cream. The 2 c.c. which the Stewart-Slack tubes hold, however, will ordinarily be found quite sufficient with whole milk.

The sediment is, perhaps, best spread on the glass slide by means of a glass spreader such as is frequently used in making blood smears. It is also quite possible to make the smear in the same way that is suggested by Slack for the direct enumeration of bacteria, that is, by means of rubbing the stopper over a definite area, such as 4 or 6 square centimeters.

THE STAIN

The methylene blue stain referred to above is made by adding about 7 gm. of Gruebler's dry dye to 100 c.c. of distilled water, allowing it to stand several hours with frequent shaking, and then filtering. Similar results can be obtained with saturated, aqueous solutions of safranin O soluble in water and Coget's Thionine and other stains, but so far the methylene blue has proved most satisfactory.

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The effect of heat on the leukocytes, so far as this test is concerned, is twofold. It alters the shape and size of the cells, and changes their staining reactions. The shape of the cell is probably gradually changed as the degree of heat increases, and the shrinking begins to appear at a lower temperature than that used for pasteurization; but the fixing of the nuclear material, which makes possible the absorption of the stain, seems to take place definitely at practically the same temperature as that fixed on as suitable for the pasteurization of milk, namely, at from 60 to 63 C. (140 to 145.4 F.).

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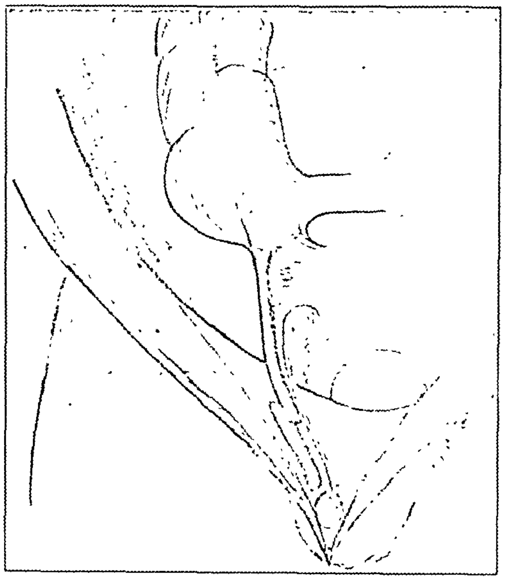

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RESULTS OF USE

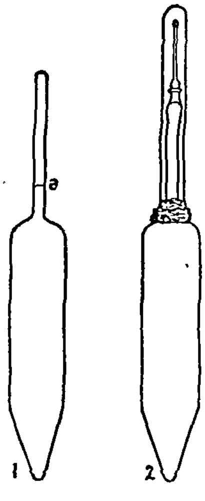
This method has been tested on many samples experimentally pasteurized in the laboratory and on several samples of commercially pasteurized milks. In a considerable number of cases, myself and two others, one with considerable practice and the other with practically none, have found it readily possible to differentiate the properly pasteurized from the raw samples. I feel sure that any one who will take the necessary time to familiarize himself with the test will be able to separate milk heated to 60 C. and above from raw milk, with the same ease and certainty that the bacteriologist now makes a laboratory diagnosis of diphtheria or rabies, and in little more time than is required to stain and examine for tubercle bacilli in sputum.

Part of the work done on this test was performed while I was working in the Laboratories of Preventive Medicine and Hygiene at the Harvard Medical School, and I desire to thank Dr. M. J. Rosenau for many courtesies extended. I also wish to thank my assistant, Miss V. A. Armstrong, for constant help.

THE VACUUM TUBE OF KEIDEL, AS APPLIED TO BLOOD-CULTURE WORK *

C. C. W. Judd, M.D., and Charles E. Simon, M.D.,
Baltimore

While blood-culture has long occupied an important position as a diagnostic method in all modern hospital laboratories, it has almost completely failed to popularize itself among general practitioners. The reasons for this are self evident. Very few general practitioners probably have private laboratory facilities at their disposal which would enable them to carry to the sick-bed all the paraphernalia which blood-culture, as hitherto practiced, demands. Moreover, a single negative result is rarely of value, while repeated examinations would frequently not be tolerated by the patient, to whom a vein puncture with a large needle is by no means an indifferent procedure. To meet these objections to an otherwise most valuable method of investigation, it occurred to us that the entire procedure might be very much simplified by the use of large vacuum tubes analogous to those which were introduced by Keidel for the collection of blood for Wassermann work, *the culture medium being placed in the tubes.* Preliminary experiments which Dr. G. H. White carried out during the fall of 1912 and the following winter showed conclusively that the method is thoroughly practical and trustworthy, and since then all blood-culture work both at the laboratory of the College of Physicians and Surgeons and in Dr. Simon's private laboratory have been conducted on this basis.



Tube for blood-culture work; one quarter natural size: 1, open tube; 2, parts assembled; *a*, point at which the tube is sealed after exhaustion.

The tubes which we are now using are manufactured by the Steele Glass Company of Philadelphia. They are illustrated in the accompanying diagram. Their capacity is approximately 50 c.c. From 15 to 25 c.c. of glucose bouillon containing 1.5 per cent. of sodium citrate (to prevent coagulation) are placed in each tube. This is most conveniently accomplished by drawing out the neck at the mark *a* to a comparatively fine caliber, without seriously weakening the glass, when each tube is connected with a suction pump and a vacuum established. The connecting rubber tube which leads to the pump is clamped, slipped off and plunged into the culture medium, when this is again connected with the suction pump, the desired degree of vacuum established and the neck sealed at *a* where it was previously drawn out. The tubes are then provided with a stout rubber cuff, armed with a No. 24 needle which, in turn, is supplied with a stylet. Thin tubing is unsuitable, as it will collapse when suction is established. The needle which we use is a trifle larger than that going with the Keidel tube, but still sufficiently small as not to cause any inconvenience to the patient. Needle and cuff are guarded with an outer glass tube, as usual, and the entire apparatus is sterilized—best by heating in the autoclave for five minutes after the pressure has reached 20 pounds. Thus prepared, the tubes may be stored, and are then ready for use at any time.

When a blood-culture is to be made, the patient's arm at the bend of the elbow is cleansed with soap and water, and alcohol and ether in the usual manner; a constricting band is placed around the upper arm, and any prominent vein punctured that may present itself. After this has been done, the sealed end within the rubber cuff is broken off, when approximately 5 c.c. of blood are allowed to enter. The constricting band around the arm is removed as soon as the blood begins to flow. The needle is then quickly withdrawn, the guard tube replaced, and the reassembled outfit carried to the laboratory. If this is at a distance, necessitating the mailing of the tube, the rubber cuff is removed under aseptic precautions, and the broken end of the collecting tube sealed in a Bunsen or alcohol flame. Otherwise this is not necessary and the entire apparatus may be placed in the incubator, as it is.

After twenty-four hours the corpuscles will have settled to the bottom, while the supernatant fluid becomes perfectly clear and remains so, if no growth has occurred. If positive, a turbidity results which develops either within twenty-four hours, or later, and varies in appearance with the character of the organism. Then, and not before, are the contents of the tube examined in the smear, and, if desired, by subcultures, though the latter are not always necessary.

The results which we have obtained with this procedure have been most gratifying. The isolation of all the common organisms which may be found in the blood (including the various types of streptococci and pneumococci) is effected without difficulty, and we feel that blood-culture with this method is now a sufficiently simple matter to be within the reach of any physician who is provided with even very modest laboratory facilities. The inconvenience caused the patient is, moreover, so slight that no objection is likely to be raised to even frequent repetitions of the puncture.

While the procedure, as above described, is one that will usually be adopted for the isolation of aerobic organisms, the same method may be employed if anaerobes are to be cultured. In that event, a vacuum is again established after inoculation of the culture medium, and the tube sealed off as in the beginning. Or, as an extra precaution, the medium may be layered with liquid paraffin before sterilization.

We may mention that we are using corresponding tubes for the collection of blood for various other purposes. For coagulation-time determinations, according to Howell's method, a smaller model is employed, charged with oxalate solution and graduated accordingly. Plain collecting tubes of large caliber are used for the purpose of obtaining blood for the Abderhalden and Fauser reactions, for the preparation of salvarsanized serum, for the collection of antiserums in animals, etc.

The underlying principle in all, of course, is the vacuum method of Keidel, to whom we cheerfully give all credit for its extension to other purposes also than the collection of blood for the Wassermann reaction.

Observation and Theory.—It is not true that observations compel any one theory. In fact, as Poincaré has shown, there is an infinite number of explanations of any finite set of facts. From among this enormous totality we must select the explanation which is most satisfying for us from considerations of convenience or from the demands of the esthetic sense. This is actually what we always do. It should be done consciously.—R. D. Carmichael, *Science.*

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* From the Department of Clinical Pathology and Experimental Medicine of the College of Physicians and Surgeons of Baltimore.

AN IMPROVED ETHER MASK

William L. Wolfson, M.D., Brooklyn
Assistant Visiting Gynecologist, Jewish Hospital

Innumerable methods for the oral administration of ether as an anesthetic have been devised. The simplest is a piece of cloth, of varied thickness, or texture, placed over the mouth and nostrils; the most complicated are those apparatus of complex and expensive manufacture, with special heaters for the warming of ether vapor, intrathoracic pressure regulators, etc. The latter appliances have no value to the ordinary practitioner, whose anesthetic needs are confined to his office or his patient's home, but they have a definite, important and necessary use at hospitals for prolonged, difficult or special operations.

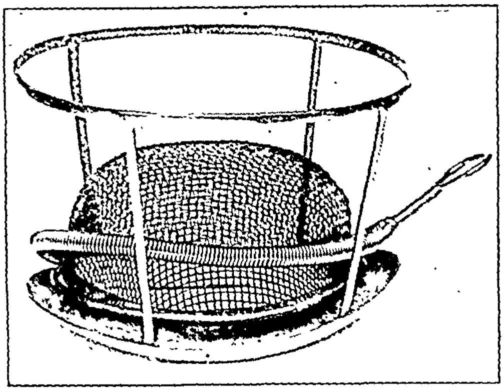

Fig. 1.—Mask, as it appears without the gauze for ether and canton flannel bag.

Of the simple devices for administering ether in common use, the Ochsner-Mayo, Yankauer and Ferguson masks have deservedly attained the greatest popularity. With all of these masks, ether is given by the open drop method.

There is little doubt that of these the Ferguson type of mask is the most efficient. Made of wire, it has an oval base to fit around the nose and mouth; arching across this base are several wire supports for gauze, on which the ether is poured. The gauze is held in position by another oval wire that presses it firmly against the base. Four wire columns, two on each side, arise from the base of the mask. They are directed upward and outward, and are surmounted on top by a circular wire. A specially made bag of Canton flannel fits around the four columns and the top wire, converting this enclosure into a semiclosed chamber, the opening being above, the size of which may be regulated with a purse string. It is through this opening above that the ether is dropped on the gauze directly below.

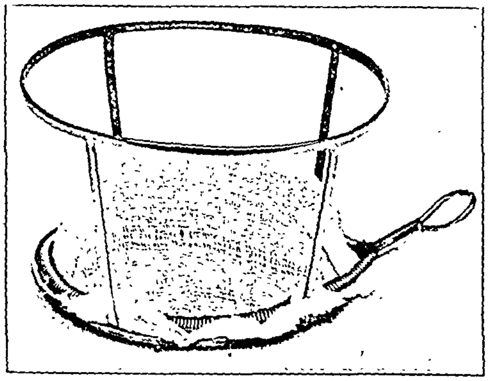

Fig. 2.—Shows the gauze for ether snapped firmly into position.

The advantages possessed by this mask are: 1. It provides a semiclosed chamber into which ether is permitted to vaporize and become warmed. 2. An appreciable degree of rebreathing takes place. 3. The amount of air accessible to the patient is easily regulated by the purse-string opening.

What merits the Ferguson mask possesses are greatly offset by a number of grave disadvantages. It was assumed that, the oval base being made of flexible wire, the shape of the mask could be bent to each individual face. After a few such attempts, I have been disappointed to find the mask greatly distorted, the gauze-locking device uncertain and the mask entirely unmanageable.

To eliminate a number of grave disadvantages that the Ferguson mask possesses, and at the same time to combine its excellent features with those of the Yankauer mask, I devised a new mask, made up for me by Sands & Levy of Buffalo.

As a base I have used the rigid Yankauer mask. The shape of this mask lends itself to almost every face. Rarely is it necessary to wrap a towel about it, to withhold an excessive amount of air accessible to the patient. Its oval spiral spring arrangement for the rapid and firm fixation of gauze in place is excellent (Fig. 1). On the sides of this mask are erected four columns, two on either side. These columns are made up of spring band German silver, ⅜ inch wide. They are surmounted on top by a circular band of the same material (Fig. 2). This insures an air chamber of permanency and stability.

As completed, with the Canton-bag covering (Fig. 3), this mask affords every advantage of both the Ferguson and Yankauer masks, and omits a number of their serious disadvantages. Its advantages are:

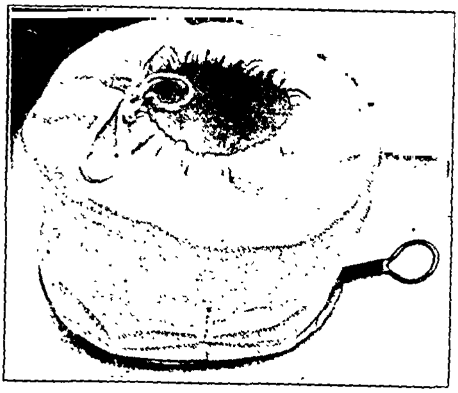

Fig. 3.—Mask as completed, with the canton flannel bag surrounding it; opening above regulated by a purse string.

1. Durability, rigidity and permanent shape. 2. The easy, precise and firm fixation of gauze. 3. Possession of an air chamber for the vaporization of ether. 4. The regulation of air accessible to the patient.

I am anxious to express my indebtedness to Dr. I. D. Kruskal, visiting anesthetist to the Jewish Hospital, under whose direction this mask has been in use for more than a year.

3003 Clarendon Road.

AN ELECTRIC HEATER FOR STAINING THE TUBERCLE BACILLUS

Carl L. A. Schmidt, Berkeley, Cal.
Chemist and Bacteriologist, Health Department Laboratory

The method of staining the tubercle bacillus by holding the slide over a small flame to steam is both slow and tedious, especially when a number of slides are to be stained. To overcome this, I have devised a simple electric heater which can be made in any laboratory, and whereby a number of slides can be stained at the same time.

The heater consists essentially of a heating unit mounted on a galvanized iron test-tube support (E. & A. No. 6694).

To the under part of the wire frame is fastened a thin piece of sheet iron to secure even distribution of heat and to prevent liquids being spilled on the heating element. About a quarter inch below this is the heating unit. This was made by wrapping about 30 feet of Nichrome ribbon wire 1/32 inch wide around a rectangular sheet of mica of nearly the same dimensions as the support. This is insulated on both top and bottom by similar sheets of mica and the whole mounted on a heavy piece of asbestos board which is fastened to the corners of the support. The wire terminals lead to binding posts which are fastened to the asbestos board. The resistance of the heating circuit is about 80 ohms which requires, on a 110 volt direct current circuit, about 1.4 amperes. This will produce enough heat to steam the slides without danger of burning should the stain evaporate. About ten slides can be stained at once.

Nichrome wire is well adapted for use in heating units on account of its high specific resistance, non-corrosiveness and high melting point. It can be bought in either wire or ribbon, the latter being the more convenient for making a heating unit. The wire is made in various widths and thicknesses.

The heater here described has been used in this laboratory for some time with excellent satisfaction.

A SIMPLE APPARATUS FOR THE ADMINISTRATION OF CHLOROFORM AND ETHER BY THE VAPOR METHOD

O. M. Layton, M.D., Fond du Lac, Wis.

The administration of ether and chloroform by the vapor method has certain advantages over the older methods, of which the most obvious are lessened danger of overdose, greater freedom from bronchial irritations, and its ready adaptability to throat work.

Junker's chloroform inhaler has been on the market for a number of years, and can be bought for about nine dollars, while there are a number of different apparatus for the administration of ether vapor to be had at prices varying from twelve to about two hundred dollars.

I have recently devised a simple and compact little apparatus for the administration of both drugs by the vapor method.

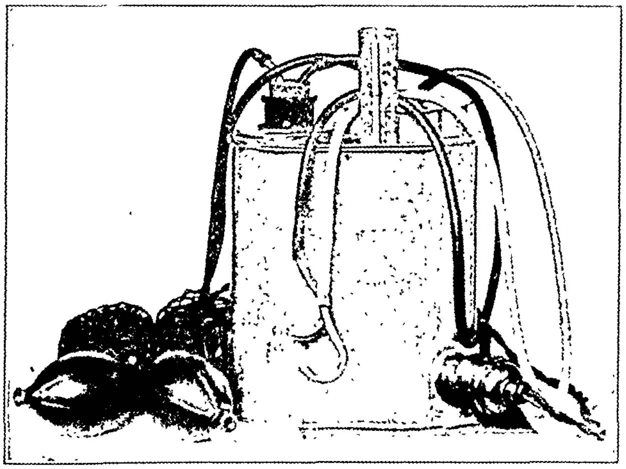

Fig. 1.—Apparatus for administration of chloroform and ether anesthesia.

This apparatus has proved very satisfactory in my hands, and can be constructed by any tinsmith at a cost which need not exceed five dollars, including the cost of bulbs and tubing.

The apparatus consists of an oval tin container 7 inches in length by 7½ in height; a removable top, to the under side of which are soldered two tin tubes 5 inches in length and 2½ and 3½ inches in diameter, perforated at the bottom and open at the top for the reception of the 4 and 8 ounce bottles. A circular tin cover with a central opening passes over the necks of the bottles, dropping to the shoulders of these.

The base for an electric light bulb is soldered in the side of the apparatus near the bottom and fitted with a 15 watt bulb. An ordinary thermometer is secured between the bottle holders.

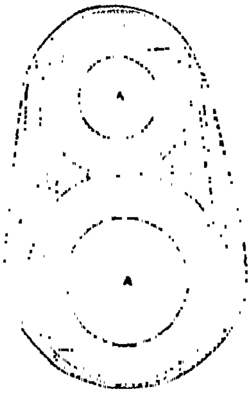

Fig. 2.—Top of apparatus: *A, A*, openings which pass over the necks of the bottles; *B, B*, circular tin cover; *C, C*, removable tin top.

The tubes may be of 3/16 inch brass or glass, and are bent at convenient angles. The inlet tubes to which the rubber bulbs are attached extend to the bottom of the bottles; the outlet tubes just through the corks.

The curved tubes at the end of the rubber delivery tubes are hooked inside of the dome of an ordinary wire inhaler which has been covered with a dozen layers of surgical gauze. In throat work, whichever tube is used may be carried inside the angle of the mouth, or the rubber tubing connected to any of the mouth gags constructed for use with the vapor method.

When in use, the temperature of the interior of the apparatus should be maintained at 85 F.; this may be accomplished with warm water if electricity is not available.

Compression of the bulbs should be timed so as to deliver the vapor to the patient at the beginning of each inspiration.

The strength of ether vapor as delivered I have found to be about right for the average patient for maintenance of satisfactory anesthesia. If for any reason one does not wish to anesthetize his patient with chloroform, he may use the ether drop method and change to the ether vapor method as soon as the patient is properly anesthetized. I have now tried this out in about 300 anesthesias within the past year, the work having been done in St. Agnes Hospital, in the surgical service of J. P. Connell, M.D., to whom I am indebted for the opportunity, as well as for many kindly suggestions.

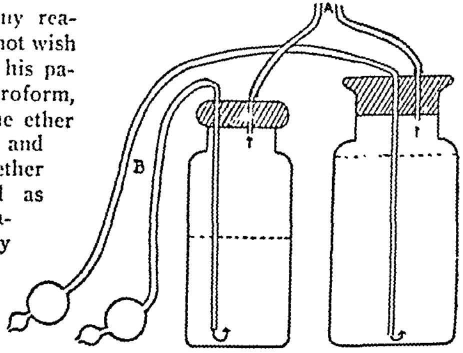

Fig. 3.—Bottles for ether and chloroform: *A*, delivery tubes; *B*, cautery bulbs and tubes.

Sleeping Sickness in Portuguese West Africa.—Consul-General Henry A. McBride, stationed at Boma, Belgian Kongo, West Africa, has made a trip through Angola, a Portuguese colony in West Africa, twice as large as the state of California. He says that in the district of Loanda and east as far as the Kwango River there are many localities in which sleeping sickness is prevalent. The principal region is along the Kuanza River where the tsetse fly abounds. In this district the sleeping sickness has almost caused the disappearance of a population once numerous and flourishing. The mortality from the disease so seriously interfered with the supply of labor on farms and plantations that in 1902 the Portuguese government sent a commission of the most eminent bacteriologists in Portugal to investigate it, with the result that measures were adopted against it, and its prevalence is far less than it was ten years ago. It is proposed to build a large sleeping sickness hospital at Ambaca. Consul McBride also says that several severe epidemics of smallpox have occurred in various parts of the colony.

Special Article

PRACTICAL PHARMACOLOGY *

(*Continued from page 742*)

IX

B. DEPRESSANTS: 6. HYDROCARBON NARCOTICS

The terms "soporific," "hypnotic" and "narcotic" are sometimes used without a clear understanding of their meaning. "Soporific" (from the Latin *sopor*, sleep) and "hypnotic" (from the Greek ὕπνος, sleep) may be considered as having an identical significance; they are applied to drugs that induce sleep closely simulating natural sleep. The term "narcotic," from νάρκη, stupor) is applied to those drugs which in moderate doses produce a more profound depression of the higher centers than occurs in natural sleep.

The following will serve to distinguish between them: Moderate doses of hydrated chloral induce sleep, during which sudden noises are perceived and their character recognized, while the patient is awakened to a normal condition, showing that the centers concerned with the perception of sound are almost as active as normally. Larger doses of hydrated chloral induce narcosis, during which the loudest noises do not awaken the patient nor can evidences of consciousness be elicited by any ordinary means, such as shaking or pinching, the perception of pain being abolished, of course.

The stage of hypnosis passes gradually into that of narcosis, and while there is no sharp distinction between them, we use the terms "soporific" and "hypnotic" for such drugs or doses as induce the lighter stage of sleep, and "narcotic" for those drugs or doses which abolish the perception of pain and induce profound depression of the higher centers.

The hydrocarbon narcotics may be subdivided for convenience of consideration into the following groups: alcohol, chloroform and ether; hydrated chloral and other hypnotics. They have very similar actions in general, differing mainly in the rapidity with which their actions are induced and their duration; hence it will be convenient to discuss the subject of narcosis briefly, even though many of the drugs of this group are never actually used therapeutically for their narcotic effects.

Many theories have been advanced to explain the action of narcotics, and while none of these is satisfactory, there is one which has gained acceptance more widely than the others. Hans Meyer and Overton advanced theories independently which are similar in many respects, and which are usually spoken of as the theory of Meyer and Overton. They believe that the narcotic activity of different agents is dependent on their relative solubility in lipoids (lecithin-albumin compounds) and in water or serum, and that this activity does not within wide limits depend on the solubility in water or serum alone.

Meyer determined the relative solubilities of various agents in water and fats, or lipoids, designating this relationship as the "coefficient of distribution." He found that those having a relatively great solubility in lipoids are more actively narcotic than those having a relatively greater solubility in water. He believes that chemically indifferent substances enter the cells of the central nervous system by reason of their solubility in the cell envelope, and that their narcotic activity then depends on their possessing molecular groups which affect the internal relations of cell compounds.

The chemically indifferent narcotic compounds exert their actions on all forms of cells which they penetrate, but not all substances having a relatively high degree of solubility in lipoids are actively narcotic, benzene, for example, being nearly devoid of this action.

Baglioni has suggested that anesthesia results from the withdrawal of oxygen from certain compounds in the central nervous system, and it is well known that narcosis results when the inspired air is deprived of oxygen. Other theories do not require mention here.

ALCOHOL—(A)

There are two diametrically opposed theories which are frequently urged to account for the earlier actions of alcohol on the central nervous system. Binz believed that alcohol stimulates the central nervous system, while Schmiedeberg holds that the action is wholly depressant and that such increased functioning as follows the use of alcohol results from the abolition of inhibition on the centers which normally exercise control over those which then show apparent stimulation.

The weight of opinion is in favor of the view that alcohol stimulates certain parts of the nervous system, the stimulation being brief, usually lasting about half an hour. Jacobi found that the motor areas of the cortex became hyperexcitable and that smaller differences in weight could be appreciated after alcohol, while even the largest doses did not cause paralysis of the motor areas.

There is no clear evidence that alcohol increases the capacity for performing the highest type of mental work, such as clear judgment and the exercise of sound logic require, but the evidence is overwhelming that the capacity for such effort is distinctly lessened, though rapid association of ideas and such feats as rhyming may be facilitated. Such stimulation as alcohol induces is soon followed by depression. The effects of the stage of stimulation are so well known that they do not require detailed discussion here. The flushed face, the flashing eye, the ready wit, the good humor are sufficiently familiar to all.

Large amounts of alcohol lead to narcosis, which will be discussed when chloroform and ether are considered.

The respiration is greatly accelerated during the stage of excitement, just as it is during excitement from other causes, but the therapeutic use of alcohol results in a slightly increased respiration even during sleep. This is frequently attributed to a direct action on the centers in the medulla, but it is not known whether the action is direct or a reflex from the peripheral irritation. At any rate, respiratory depression does not occur unless the dose is large.

The vessels of the skin dilate after moderate doses of alcohol, and this dilatation is sometimes accompanied by a constriction of the splanchnic vessels which is sufficient to increase the blood-pressure slightly; but the changes in blood-pressure are only slight unless large doses have been administered, in which case there is a marked vasodilatation and fall in the pressure. It is not profitable to enter into a discussion here of the seat of this action, because the question is still unsettled.

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* This is the ninth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

The vagus center and that concerned with the emesis are probably not affected directly.

The heart-rate is not changed after therapeutic doses of alcohol, though the contraction may be slightly stronger, and it has been suggested that this is due to the supplying of energy directly by the alcohol. This, however, does not seem to be a satisfactory explanation. The behavior of the blood-pressure is inconstant, and it is probably of less importance than is the distribution of the blood.

Alcohol acts on the muscles directly and indirectly through the central nervous system. The direct actions are exerted in opposite directions. The immediate effect on muscular effort is to diminish the efficiency of the individual contractions, and the remote, to delay the onset of fatigue. Under its influence the muscle contracts less perfectly from the start but continues at this slightly lower level for a longer time, with the result that more work is performed before it becomes exhausted. It must be understood that this action is available only occasionally, for the habitual use of alcohol interferes with muscular efficiency, as it does with nearly all of the functions of the body.

The reason for the delay in the onset of fatigue when alcohol is applied to the muscle directly is that the alcohol is oxidized to carbon dioxid and water, which are immediately removed, while the oxidation furnishes muscular energy, and the fatigue products accumulate more slowly than normally.

This action is probably negligible when alcohol is taken by the mouth, and the central action is then responsible for the increased capacity for muscular effort. It does this by facilitating the excitation of the motor areas and by lessening the perception of fatigue. Alcohol may therefore prove useful in an emergency, when it becomes necessary to continue physical exertion beyond the time when excessive fatigue would demand rest. The factors involved in increased voluntary muscular effort would not affect the action of the heart, and it is difficult to explain its improving the cardiac action on the basis of any direct action, or of the lessened perception of fatigue; hence we must suppose that any improvement in the condition of the heart which it induces must be secondary to circulatory changes.

The association of parental alcoholism and degeneration or pathologic conditions in the offspring have long been recognized. It is known that epilepsy is more frequent in the offspring of alcoholics than of abstainers; a recent report, moreover, calls attention to the fact that alcoholic intoxication in the father at the time of impregnation may result in an epileptic child even when there is but the single indulgence in alcohol.

The high tax on ethyl alcohol has led to the abuse of methyl alcohol, which should not be used internally or externally on the body. A great number of fatal cases of poisoning or blindness have resulted from its use.

It is often claimed by the manufacturers of wood alcohol that blindness following its use is due to impurities present, but the purest wood alcohol obtainable causes blindness, and this action is explained by the retention of the methyl alcohol in the central nervous system and its slow oxidation to formic acid, which acts on the retina, causing degeneration.

Alcohol is absorbed rapidly from the gastro-intestinal canal and it also favors the absorption of other substances, probably through its mildly irritant action on the mucous membrane.

Alcohol is eliminated fairly rapidly when small amounts are taken, the habitual user burning it faster than the non-habituated. It has been found that only about 2 per cent. of a dose of 70 gm. (2½ ounces) escaped oxidation when taken during rest, in which extremely small amounts escaped from the lungs. Ten times as much may escape oxidation and be eliminated by the lungs when alcohol is taken during exercise.

Gastric digestion is not materially affected by moderate amounts of beer and wines of low alcoholic content, and they may even promote digestion; but brandy and whisky, containing about 50 per cent. of alcohol, interrupt digestion when they are taken in sufficient amount, and digestion is not resumed until the concentration of the alcohol is reduced sufficiently through absorption or dilution with the gastric contents.

Alcohol is antiseptic, absolute alcohol being much less active than that of 70 per cent. strength. This is probably explained by the fact that the stronger alcohol dehydrates the bacteria, increasing their resistance.

The continued moderate use of beer and other beverages of low alcoholic content commonly results in a gain of weight, due mainly to an increase in fat. Alcohol is also capable of sparing protein in those who have become habituated to its use, but not in those who use it only occasionally, or for a short time.

The dilatation of the vessels of the skin causes a sensation of warmth, because the increased blood-supply increases its temperature. This leads to a greater loss of heat than normally, and the body temperature may actually fall, even while one feels warmer, because the increased heat loss is not compensated for by increased heat formation. For this reason, the practice of taking alcohol before going out in extremely cold weather is dangerous, and severe exposure has often proved fatal under such circumstances. It is more rational to take alcohol when one returns to a warm room after having suffered from exposure to the cold, for then sensation of warmth acts as a stimulant, while the warmth of the room prevents further loss of heat.

The treatment of chronic alcoholism cannot be discussed here in detail. Attention was recently called to the often-observed fact that those who are fond of alcohol are not usually fond of sugar, while those who like sugar care little for alcohol; the theory was advanced that chronic alcoholism results from a disturbance of physicochemical balance, which may be corrected by diminishing the supply of alcohol and increasing that of sugar in the diet.

Common experience shows that individuals differ widely in their response to alcohol. The average fatal dose for a non-habituated adult is probably the equivalent of about 100 to 150 c.c. (3 to 5 fluidounces) when taken in fairly concentrated form, such as brandy or whisky. The more dilute forms, such as wine and beer, are not correspondingly active, because excretion then more nearly keeps pace with absorption. On the other hand, the more concentrated alcoholic beverages are more irritant to the stomach, and cause protective emesis more commonly than the weaker ones.

The first stage of alcoholism may be disregarded here, as it does not usually call for therapeutic treatment and is of minor toxicologic interest, but severe acute alcoholism, while rarely fatal, is extremely common and often demands treatment.

The more common type of acute alcoholism seen in habitués is different in several essentials from that seen in the non-habituated, and will be discussed first.

The common drunkard usually falls asleep under the influence of alcohol and will so remain if undisturbed, but when awakened he is prone to show excitement and extreme pugnacity that is difficult to control. The practice prevailing in some of the metropolitan hospitals in dealing with such patients is as follows: The stomach is washed, not so much to remove alcohol, which has usually been absorbed, as to remove undigested food and relieve nausea and vomiting, and to secure the retention of medicine. A dose of magnesium sulphate (half a pint or more of 10 per cent. solution) is then passed through the tube and allowed to remain in the stomach with the object of causing active purgation. This is followed by the administration of large doses of paraldehyd—three or four teaspoonfuls every half hour until excitement is controlled. This may seem contra-indicated in alcoholic intoxication, in view of the similarity of action of the two, but it is said to act extremely well in controlling the delirium of inebriates. Of course it is not used when deep narcosis results from the alcohol, which is rare in these cases.

When extremely muscular inebriates cannot be controlled sufficiently during the maniacal stage to permit of washing the stomach, a hypodermic injection of apomorphin, 0.008 gm. (⅛ grain), suffices to cause emesis and promptly reduce the patient to docility.

Severe alcoholic intoxication in the non-habituated usually causes more profound depression, which may succeed the first stage gradually, or may develop suddenly, causing death within a few minutes. During the narcotic stage there is active dilatation of the vessels in the skin, the face becoming scarlet, but soon there is a great fall of blood-pressure, due to the dilatation of the splanchnic vessels, and the skin of the trunk and extremities becomes cool and clammy, the respiration becomes stertorous, the pulse feeble. Emesis may occur at any time before narcosis develops, owing to the gastric irritation. When profound narcosis begins emesis stops, but it may recur as the narcosis passes away. The urine and feces are often evacuated involuntarily; with the failure of respiration the skin becomes cyanotic, as in asphyxia from any cause. The odor of alcohol on the breath is characteristic.

Chronic inebriates may of course present the stage of profound narcosis when the amount of alcohol taken is excessive, but this is unusual. The patient generally recovers after sleeping a variable length of time, but Kobert states that recovery seldom takes place after coma lasting more than thirteen hours. Death occurs rarely from rapid failure of the respiratory center, or from apoplexy; edema of the lungs may result in death after some days. Cardiac failure or apoplexy may cause sudden death after the patient is apparently on the road to recovery, or this may result after some days from pneumonia or encephalitis. The latter is of interest in view of the suggestion that the headache which commonly follows a drinking bout may be due to pressure of cerebrospinal fluid on the brain due to increased secretion resulting from alcohol.

When a patient is seen after taking a dangerous dose of alcohol, the stomach should be emptied by the stomach-tube as promptly as possible, but, as previously suggested, this does not serve to remove much of the alcohol unless it is done immediately after the administration of the alcohol. If a dangerous amount of alcohol has been swallowed, the further treatment must be largely symptomatic—cold applications to the head, and warm applications to other parts of the body to prevent cooling. It has been suggested that venesection might be considered, but that would seem to be a council of desperation. It would seem to be more logical to inject as much as a liter (1 quart) of 2 per cent. solution of sodium sulphate intravenously in desperate cases, in order to dilute the alcohol which continues to circulate in the blood, and possibly to hasten elimination, though little benefit is to be expected probably.

Caffein is antagonistic to moderate amounts of alcohol, but its value in excessive depression is problematic. It should be administered intramuscularly (not intravenously) with caution and stopped if it fails to cause prompt, even though slight, improvement. Artificial respiration will be required if respiratory failure threatens.

Should the more threatening symptoms subside, the physician will be called on to treat the gastric disturbances and the headache which follow the narcotic stage. These demand the usual gastric sedatives, and caffein and potassium bromid for the headaches.

The following may be found of advantage in such cases:

Bismuth subnitrate.........10 gm. or 2½ drams.

Make five powders and give one every three hours until all are taken.

The addition of an alkali is preferred by some and may be directed as follows:

Bismuth subnitrate	10 gm. or 2½ drams.
Sodium bicarbonate	5 gm. or 1¼ drams.

Mix and divide into five powders. Give one three times a day.

For the more aggravated case of alcoholic gastritis a moderate dose of cocain may be found advantageous.

Cocain hydrochlorid	0.05 gm.	or 1	grain
Bismuth subnitrate	10.00 gm.	or 2½	drams
Mucilage of acacia	20.00 c.c.	or 5	fluidrams
Syrup	20.00 c.c.	or 5	fluidrams
Water to make	100.00 c.c.	or 3	fluidounces

Mix and direct that one tablespoonful be given and the dose repeated in two hours if necessary.

Caffein may be administered with the bismuth or preferably separately in the form of capsules either as caffein, citrated caffein, or caffein sodiosalicylate, 0.3 gm. (5 grains) in each capsule.

Potassium or sodium bromid as a sedative is best administered in the form of simple aqueous solution, 2 gm. or 30 grains in about 20 c.c. of water. The bromids are usually borne best when administered with simple carbonated water.

THERAPEUTIC USES

Few drugs have been used more extensively than alcohol, and few continue to be the subject of more heated debate. Cabot remarked that there are two camps opposed to each other concerning the actions of alcohol. In the one, those who believe alcohol to be useful in therapeutics are unable to give more than vague impressions that patients improve with its use, or *to state wherein the improvement is shown.* On the other hand, the opponents of the use of alcohol usually cite old experiments on animals in which enormous amounts were used, or the results obtained with soldiers, typesetters and others who were undergoing feats of endurance. Cabot found the action of alcohol to be practically nil with respect to the blood-pressure in 1,105 measurements on forty-one patients suffering with typhoid fever; nor could he observe any constant effect after therapeutic doses of alcohol with respect to temperature, pulse-rate, respiration rate, appetite, sleep, delirium or renal or cutaneous secretion in 2,160 observations on 309 patients in a variety of conditions. Cabot does not deny, however, that alcohol may have well-defined uses as a vasodilator and hypnotic.

One reason for the diversity of opinion concerning the therapeutic value of alcohol is that it is often used for its psychic effects, to buoy up the spirits of the patient and engender hopefulness and courage—conditions which physicians impart to their patients in such variable degrees by their manner and self-confidence.

It is obvious that alcohol effects changes in the distribution of the blood. In order to do this it must increase the blood-supply to some regions of the body and diminish that to others, and it is hardly conceivable that such changes should not prove beneficial in some cases and harmful in others. The selection of those cases in which the changes will be desirable, while avoiding the use of alcohol in those in which it will prove deleterious, will tax the knowledge, experience and patience of the practitioner.

It is often stated that alcohol improves the circulation in shock. One eminent pharmacologist calls attention to the dilatation of the vessels of the skin and explains the improvement sometimes seen after its use when the heart is beating feebly, as due to the lessened resistance to the contraction of the heart which this dilatation affords, thereby permitting recuperation. Another equally eminent authority cites this dilatation of the vessels of the skin as evidence that the splanchnic vessels are simultaneously constricted, according to the usual physiologic rule of compensating action between the peripheral and splanchnic vessels, and states that the improvement in the heart results from the increased *blood-pressure, which of* course increases the resistance against which the heart must contract, but which also affords a better blood-supply to the heart itself.

Alcohol may cause increased resistance at one time and decreased resistance at another, and while it is impossible to foresee which will follow in a given case, improvement in the condition of the heart may follow a rise of pressure when this was previously low, or a *fall in pressure provided it was not previously too low.*

When the heart is suffering with the effort to contract against high aortic resistance, the effect of the changes in circulation induced by the administration of alcohol will depend on the relative changes in the coronary and in the general circulation. If the blood-supply to the heart is increased in greater proportion than the amount of extra work thrown on the heart by a rise in the blood-pressure, the increased nutrition of the heart will cause an improvement in its capacity for meeting the added resistance, and its condition will improve; if, on the other hand, the rise of blood-pressure imposes an additional amount of *work on the heart out of proportion to the increase in* the coronary circulation, then the heart will suffer further injury. Since it is often impossible to foresee the direction which the change in circulation will take, it is better to use a small dose of alcohol and increase this cautiously if careful study of the circulation shows improvement.

Cardiac failure—not simply the actual stoppage of the heart, but the failure to maintain an adequate circulation—is often dependent *in part on faulty* respiration, and the action of alcohol in improving the respiration may react on the circulation and institute a cycle of improvement. Any improvement in the respiration which alcohol induces is usually little more than incidental, and we have other and better stimulants for the respiratory center.

It is generally admitted that alcohol is a food, but its value as a food is the subject of much uncertainty. It is not an ideal food, and even under the most favorable conditions it is utilized at the expense of injury to the organism. It must therefore be decided in any case whether the possible good will probably outweigh the harm.

Alcohol in the form of wine affords a pleasant hypnotic for occasional use, but the well-known tendency to give rise to the habit forbids the routine use of this beverage.

Alcohol is often used for bathing the skin in fever, and for hardening the skin to prevent the formation of bedsores.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 743)

XXII

Measles

Measles is probably the most frequent of all infectious diseases, and as many as 25,000 cases have occurred in the city of New York in one year. No age is immune, although infants under 6 months are rarely attacked. Though measles can recur in rare instances, it generally confers immunity for life. That *it is considered such a simple, common disease* is probably the cause of the large number of deaths from neglect. It is estimated that 12,000 deaths a year occur in the United States from this disease, and the number might be much greater if some bronchial and lobar pneumonias were properly recorded as directly followed by measles. The greatest number of deaths occur in young children. While occasionally a death may occur from the intensity of the disease, generally death is caused by complications in the lungs, abdomen or ear. The complication in the ear is middle-ear inflammation with, at times, an extension to the mastoid. In the lungs the condition may be bronchial pneumonia or pneumonia; or the bronchial glands, which are probably always inflamed in measles, may become permanently enlarged. If tuberculous glands are present, general or pulmonary tuberculosis, if not considered a complication, is frequently caused by measles. The glands in the intestines may become inflamed and cause serious trouble. Inflammation of the cervical glands occurs not infrequently. Nephritis is rare. Hemorrhagic skin eruptions occasionally occur. The urine of patients suffering with measles has been shown to be toxic to guinea-pigs; therefore the toxins of this disease are circulating in the blood and pass into the urine.[1]

In civilized countries the mortality, though varying somewhat in different epidemics, is always greater where children are crowded into dark, damp tenements, and is often greater in institutions, probably from the fact that physical defects are more or less likely to be present in institutional children, or at least there is often damaged heredity. In civilized communities there has been gradually handed down more or less immunity to malignant attacks of this disease, and it has been observed that when measles first reaches uncivilized communities in which measles has not before been rampant, the death rate is exceedingly great.

Statistics show that the largest number of cases occur in the spring or late fall, and that the sexes are about equally attacked.

Anderson and Goldberger[2] have successfully caused measles in monkeys by using the blood of a patient with measles. They also showed that the nose and throat secretions may infect the monkey, but that positive results could be obtained from these secretions only when they were collected during the period of eruption. While they do not wish their deductions to be considered final, they are pretty well convinced that infection from nose and throat secretions disappears with the approach of convalescence. They did not find that the desquamating epithelium from the skin lesions carried the virus of measles.

Lucas[3] quotes Hecker[4] as finding that the virus that will infect monkeys is in the blood stream of patients with measles twenty-four hours before the appearance of Koplik's spots, and that the virus remains in the blood and can infect monkeys at least thirty-six hours after the appearance of the skin eruption. This emphasizes what has long been recognized, that the greatest infectivity of measles is during the very earliest stages, and generally before the diagnosis has been made.

Goldberger and Anderson[5] have shown that the virus of measles may pass through a Berkefeld filter, may resist desiccation for at least twenty-four hours, becomes non-infective after being subjected for fifteen minutes to a temperature of 55 C. (131 F.), and will resist freezing for at least twenty-four hours. With these scientific facts it may readily be seen why, clinically, measles is the most contagious, next to small-pox, of all diseases with which we are acquainted, and the fact that it is most contagious almost before the diagnosis can be made renders its prevention very difficult.

EARLY SYMPTOMS

It is essential, if possible, to make a diagnosis of measles before the stage of eruption. After a varying period of incubation, averaging perhaps two weeks, the first stage of measles is evidenced by an acute coryza, attended by considerable sneezing. The eyelids become swollen, and the eyes somewhat inflamed. The tonsils are generally enlarged, and the throat congested. The secretions from the nose and throat are at first serous, and later seropurulent. There is almost invariably some fever from the beginning of this first stage, varying in amount, and it is generally the highest during the first and second day of the complete eruption which, on the average, appears on the fourth day. The usual symptoms of infection are likely to be present, namely, coated tongue, loss of appetite, muscle aches, headache, some lumbar pains, chilliness, and in children sometimes vomiting or diarrhea. With the appearance of these symptoms, measles should always be suspected.

In no attack of acute illness in a child should an examination of the mouth and throat be omitted. A careful examination of the mouth will often show some punctate red spots on the hard palate, and on the mucous membrane of the cheeks will quite generally be noticed Koplik's spots, which are diagnostic. Though early described by other observers, the spots which bear his name were brought to general notice by Koplik in 1896. They most frequently occur on the cheeks near the molar teeth, and at first appear as little darker blotches on the red membrane. Soon in the center of these blotches appears a very small bluish-white speck slightly raised from the surface. These spots never seem to occur on the gums. Although there may be but few of these spots, they are typical and diagnostic of measles. Many times they are not found, but it is probably generally because they have been overlooked, or have been very few in number and minute. These spots may appear two or three days before the eruption on the skin; their diagnostic importance is therefore evident.

One should not be thrown off his guard during the first stage of measles by a sudden dropping of the temperature. This sometimes occurs without any antipyretic, and has not been explained. In other words, the illness seems, apparently, about to cease, and suddenly the temperature again rises, and soon the skin eruption is present.

The blood in measles is more or less characteristic. There is diminution in the number of leukocytes, that is, a leukopenia. Lucas[6] says that early in the infection there is distinct change in the white blood count, and that the greater diminution is in the lymphocytes. He states that a relative diminution of lymphocytes and neutrophilic cells may be noticed a week before any visible symptoms of infection occur, and that the blood will show positive evidence of this disturbance at least forty-eight hours before Koplik spots appear. He also finds a great many disintegrated cells in this blood picture. Lucas[3] also states that different investigators have shown that the eosinophil cells are diminished, and may even disappear entirely from the blood of patients during the eruptive stage of measles.

In pneumonia, in epidemic cerebrospinal meningitis, and in scarlet fever the leukocytes are increased in number. In typhoid fever and in measles there is a diminution of leukocytes, but in these diseases the greatest diminution is in the polymorphonuclear cells, while the lymphocytes may be relatively increased.

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ERUPTION

This is most thoroughly described in all its details by Lucas.[3] The typical eruption of measles is papular, begins *from the third to the fifth day* (generally on the fourth), and lasts four or five days, the amount varying widely in different cases. It begins on the neck and face, then on the back, and then goes to the shoulders, arms, abdomen and legs. Besides the typical papules, there may be many macules which never reach the papular stage. The spots are generally of a dull reddish color, and somewhat resemble the bites of fleas. They may be irregular in shape and coalesce and form patches. A typical distinction from scarlet fever eruption is that in scarlet fever there is an oval clear space around the mouth. Von Pirquet[7] believes that the eruption of measles depends on the vascularity of the skin, and that the rash appears early and is more intense on the parts of the skin that have a large blood supply, and in parts that are near the large blood-vessels, and he concludes that the rash is the result of a "reaction with the measles organism or virus which takes place in the capillaries of the skin," and may be due to an agglutination of the measles organism by the action of its antibodies.

Prodromal rashes may occur in measles and cause difficulty in diagnosis. There may be an erythema not unlike scarlet fever patches. These eruptions may occur one or more days before the typical eruption of measles. They are generally urticarial in type, and often represent some acute indigestion or food poisoning, or may be due to some drug that has been administered. The diagnosis is made by the catarrhal symptoms, by the blood count, by the Koplik spots, and by the occurrence of the typical eruption of measles.

There is always more or less desquamation after the eruption begins to fade, and the more the eruption, the more the desquamation. It may last for a few days, or may last for one or more weeks. This desquamated epidermis is generally in the form of fine scales.

PREVENTION OF INFECTION OF OTHERS

As stated in the beginning of the discussion of this disease, probably few persons escape an attack of measles. Therefore, up to recent years, before isolation measures were inaugurated, most adults had had measles, and therefore were immune to the disease. With the isolation measures now in vogue, many youth and young adults have never had the disease, and therefore physicians are having more cases of measles to treat in persons who are no longer children.

A large number of cities have now declared that measles is a reportable disease, though placarding of the houses which contain the disease is not general. The isolation required by boards of health varies from fourteen to twenty-one days. A longer period than two weeks seems entirely unnecessary, as it seems probable that infection can be given only in the very early stages and apparently not longer than the stage of eruption, even by the secretions of the nose and throat. The desquamating skin does not carry contagium. Therefore, a long quarantine would seem an unnecessary hardship.

A schoolchild being reported as having measles should cause the other children in the family and tenement to be studied as to whether or not they have had the disease, and as to how close contact they have had with the infected child. It would seem unnecessary to keep children out of school who have already had this disease, since it has not been shown that there are carriers of this germ. The children who sit in school in the immediate vicinity of the infected child should also be studied, as it is positively known that the most contagious period of the disease is before the eruption, which often means, in mild cases, before it is known that the child is ill. Children who have not had the disease and who have been directly exposed to possible infection from the child who is known to have the disease should remain out of school and away from other children for a period of at least fourteen days.

It has been shown that the contagium of measles, infectious as it is, is transmitted by a more or less close contact. In the wards of hospitals measles has been treated in box compartments open at the top, without giving the contagium to adjoining beds.

The greatest danger of this disease is to young children; therefore when a schoolchild becomes infected, although the disease is almost universal in civilized countries and the majority of mankind has had it or will have it, the greatest of care must be taken that other children do not acquire this disease and later give it to infants in their households. Consequently, careful cleanliness and antiseptic measures should be used in a room in which the infected child had his desk. It is probably rarely necessary to close a school or a schoolroom on account of measles.

Physicians who are in university and seminary or boarding school towns and see a considerable number of the youth of the nation become seriously ill with such children's diseases as measles and mumps, in view of the well-known fact that these simple diseases are frequently more serious in older persons than in children, often question the wisdom of preventing the occurrence of such diseases in children. The answers to such a point of view are: 1. The more cases of measles there are, the greater will be the number of deaths, especially among infants and young children. 2. The more measles there is, the greater will be the number of permanently injured ears, in spite of good treatment.

The present hope must be that the germ of measles will be discovered and that a vaccine will be elaborated that will cause the individual to be as immune against measles as he is now immune against smallpox from cow-pox vaccination.

TREATMENT

In the first place, if the child is very young, the danger from measles is greater. Also, the death rate in the summer months is smaller than in the winter months. This is because this catarrhal disease so readily tends to cause lung and ear inflammations. As seen so frequently in many diseases, typically pneumonia, the mortality in hospital cases of children with measles is greater than in private houses, which means that such children frequently come from the unhygienic atmosphere and surroundings of tenement houses.

A patient with measles must be isolated. The room must be warm, as these patients should not be subjected to cold drafts or cold air. Chilling is especially harmful in measles. This does not mean that the air of the room should not be fresh and clean, and the ventilation the best possible.

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[7] Von Pirquet: Ztschr. f. Kinderh., 1913, vi, 1.

Eyes.—Unless the child is very young and cannot wear colored spectacles, the room should not be dark. Sunlight is as essential for the welfare of patients with measles as it is in any other disease. It is absolutely unnecessary, in ordinary cases, to have the room black dark on account of the eyes. If the eyes are inflamed, the child will cooperate and really enjoy using colored spectacles. Of course, when it is time for the child to go to sleep, the room may be darkened, and the glasses removed.

A saturated boric acid solution may be used as a wash on the eyes, and if it seems advisable, some simple eye-drops may be used, such as:

		Gm. or c.c.		
℞	Acidi borici................		25	gr. v
	Aquae camphorae...........	15		flʒ ivss
	Aquae ....q.s. ad	25		flʒ i

M. Sig.: Use as eye-drops three or four times a day.

If the lids tend to stick together after sleeping, they should be gently washed with warm boric acid solution or plain warm water, and before the child goes to sleep the edges of the lids may be anointed with thick white petrolatum.

Cough, Etc.—If old enough, the child should gargle several times a day with some simple, warm, alkaline sedative solution. If the child is not old enough to gargle, the throat should be sprayed. The nose should also be sprayed occasionally, if it seems stopped up. However, it is often well to leave the nose alone in measles. Most nasal douching is inadvisable, as tending to force fluid or secretions into the eustachian tubes.

Most of these patients require some simple expectorant mixture, although many physicians are losing faith in the activity of so-called expectorant drugs. There is no safe drug that promotes the secretion of the mucous membrane of the upper air passages and bronchial tubes more than does ammonium chlorid. It is of advantage in causing the cough to be less dry, and therefore aiding the expulsion of any mucopurulent matter that may be in the trachea and bronchial tubes. Also, if the cough is excessive from irritation, a sedative should be added to prevent the unnecessary coughing. A child 5 years old may receive the following:

		Gm. or c.c.		
℞	Codeinae sulphatis.........		05	gr. i
	Ammonii chloridi..........	3		ʒ i
	Syrupi tolutani...........	50		flʒ ii
	Aquae ....q.s. ad	100		flʒ iv

M. Sig.: A teaspoonful, in water, every two or three hours, when the child is awake.

If the child's cough is not excessive or irritable, the codein may be omitted from the mixture. As soon as the expectoration is more free and there is no excessive amount of coughing, the medicine may be stopped. A child 10 years old should receive twice the amount of codein sulphate, and the ammonium chlorid should be increased to 5 gm., and if deemed advisable, the sour sirup of citric acid may be substituted for the sweet sirup of tolu in amount of 25 c.c. to the 100 c.c. mixture.

Bowels.—In the beginning of the disease, the child should receive a small dose of calomel, 0.05 or 0.10 gm. (1 to 1½ grains) given with milk; or a dose of castor oil, or some rhubarb or cascara; at least, the bowels should be thoroughly and well moved. Minute doses of calomel frequently repeated should not be given, as such dosage causes irritation and no benefit. Subsequently the bowels should be moved daily with some gentle laxative, if such is needed.

Diet.—The food depends on the temperature, and should be liquid and simple as long as the temperature is elevated. As soon as the temperature falls to normal, the child should receive good nutritious food, and plenty of it. It is inadvisable to give meat in any form, including broths, as long as the eruption is present. If, as has been suggested, the eruption in measles is caused by some irritant circulating in the blood, such as occurs in urticaria, representing a sort of anaphylaxis, the proper diet comprises cereals, milk, and plenty of water. Such little patients are better without fruits, as sometimes even orangeade or lemonade seems to cause more itching and discomfort of the skin.

Fever.—The temperature rarely calls for much treatment. If it is high, however, one or two doses of acetanilid will generally be sufficient to reduce it. Hot sponging will cool the child as much as cold sponging will, and with less disturbance. Cold sponging in measles is inadvisable. As often as the child is bathed or sponged for temperature, the surface of the body should be powdered with some bland talcum.

Skin.—Unless the room is cold and damp, or the patient is otherwise ill, a cotton nightdress will cause less itching and discomfort than would a warmer flannel or silk shirt. All through the illness the nurse should recognize that it is the secretions of the nose and throat that cause infection of others, and not the eruption or exfoliation from the skin. This does not mean that it is not necessary to sterilize the child's garments and bedclothing, as such may carry the infection from the nose and throat.

Convalescence.—Prolonged, careful convalescence is essential in measles. Measles, like whooping cough, is often a forerunner of pulmonary tuberculosis. Probably no attack of measles ever occurs that does not cause enlargement and more or less inflammation of the bronchial glands. If such glands harbor tubercle bacilli, they are stimulated to cause an acute infection. On the other hand, immediately after an attack of measles a patient is doubtless more susceptible to infection from tubercle bacilli. Therefore, before the child is returned to school the cough should have ceased, his weight should be normal, and his nutrition should be good.

Persistent enlarged glands in the neck or elsewhere, and adenoid conditions or enlarged tonsils, should all be regarded with suspicion. Such conditions are liable to be accentuated by an attack of measles, and proper treatment should be instituted. A suppurating ear must be treated by a specialist until pronounced cured and the hearing is as near perfect as possible. The physician should remember that most defective ears follow measles, scarlet fever and influenza; that an acutely infected ear, if immediately correctly treated, is generally saved intact; distention and perforation may occur without pain. Consequently, he should be ever alert to see that the complication of middle-ear inflammation is immediately treated.

(To be continued)

Typhoid and War.—In six years the typhoid germ kills more people than were killed on both sides during the four years of the Civil War.—Typhoid Fever, circular prepared by the North Carolina State Board of Health.

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SATURDAY, MARCH 6, 1915

CURRENT ASPECTS OF MILITARY SURGERY

Although there is no dearth of news from the front in the present European conflict, it can scarcely be said that there has been a surfeit of authentic information relating to the medical features of the great campaigns that are taking place abroad. The leaders in medicine and surgery most competent to report the situations that confront the medical organizations of the enormous armies in the field have been too busy with the immediate demands of the thousands of sick and wounded and with the problems created by new conditions of warfare. The helpful tasks of literary-scientific retrospect and review must be postponed until the future, when a secure peace will afford an opportunity to learn in fuller measure the lessons which the experience of the medical staffs affords.

An occasional glimpse of the real state of affairs seen with the eyes of the expert at this early date is, accordingly, of more than incidental interest. For this reason we record some of the impressions which Professor Tuffier, the Parisian surgeon, has lately communicated.[1] At the outset it must be recognized that the questions of paramount importance in the surgery of the wounded involve, first of all, the prevention or diminution of sepsis; secondly, promptness of treatment, and thirdly, transport of the wounded from the firing line to the base hospitals in ways that are as humane and as little harmful as the conditions will permit. Obviously an ideal management of the situations which are created is never possible; for, as has been remarked by a keen observer of the work of many battlefields, from the point of view of the commanding generals, the patients are merely a part of the unfortunate and inevitable waste of war, and cannot be allowed to take precedence over supply trains for the troops in critical moments.

"I desire to do honor," Tuffier writes, "to the teachings of two great French surgeons, Chassaignac and Lucas-Championnière, the triumph of whose theories is henceforth incontestable—namely, the superiority of the method of antisepsis over that of asepsis, and the drainage of infected wounds at the most dependent angle." This quotation will serve to indicate the direction and intent of much of the surgical work of more immediate importance. With non-closure of wounds as a rigid rule, and with an unremitting watchfulness for evidences of insidious acute septicemia or gangrenous emphysema which may demand major operative intervention, the tendency of the French surgeons has been toward a primary conservative surgery of the limbs instead of treatment by amputation. The more frequent injuries are caused by rifle bullets, shrapnel and shell splinters. The part played by the latter in the development of the most dangerous wound infections is so great that immediate extraction of the splinters is of the first importance. Bullet wounds are usually less formidable, as has been recognized for some time in military surgery. Under the modern system, after extraction of superficial splinters, cleansing of the wound, and local dressing, the patients with complicated fractures, as well as those with bullet wounds of the chest, can usually be transported successfully from the station of departure to the larger hospitals, where further extensive surgical intervention is often quite unnecessary.

A far more difficult surgical problem is presented by the wounds of the abdomen. Laparotomy and suture of the intestine seem impossible with any chance of success in surroundings where septic cases abound and where men are arriving every minute with wounds of all degrees of severity demanding immediate examination and treatment. At most, if percussion shows the presence of a large intra-abdominal effusion, as it often does, a suprapubic incision may be made under local anesthesia and the wound drained. The whole treatment of abdominal wounds at the field hospital—the first clearing house for the wounded—resolves itself into this: to keep the patient in a sitting position and without food, until he arrives at a hospital provided with suitable facilities for further treatment.

As has been expected, tetanus is the great complication of wounds received in battle. It is at present seen in every grade of military hospital. In the great majority of cases, Tuffier assures us, inoculation occurs on the field of battle and only exceptionally in the hospital wards. The most frequent sources of tetanus are shell wounds, wounds soiled with earth, and wounds of the fingers and toes. It has been suggested that inasmuch as many of the wounded are returned from the front in cars that have been occupied by horses, and since these animals are known to harbor the tetanus bacilli, a prominent source of infection is hereby afforded. Inoculation in this way is, of course, theoretically possible; but in view of the protective dressings which the wounded carry and of the non-selective distribution of the infection, it is hardly probable that the railroad trucks are the real pathogenic factor. Tuffier is convinced that patients presenting no specific symptoms are not infrequently carriers of the tetanus bacillus on the surfaces of their wounds.

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[1] Tuffier: A Contribution to the Study of Military Surgery, Brit. Jour. Surg., 1915, ii, 449.

The counsel of perfection—the destruction of microorganisms in a wound by means of the first dressing—can rarely be carried out adequately at the front. Antitetanic serum must therefore be used at the earliest possible moment. Tuffier argues that tetanus must be attacked on the field of battle where it originates, and it is there that antitetanic serum should show its value. He even believes that the available supply should be employed for the newly wounded, and systematically injected before the first dressing is applied. Only the surplus should be furnished to hospitals in the rear; for, Tuffier[1] writes, "at the present time we have not an instant to lose; tetanus is our most cruel enemy, and this measure ought to give us the maximum chance of success."

The unexpected frequency of gangrenous emphysema in the present war has already been pointed out in THE JOURNAL.[2] The management of this treacherous infection, even with free incisions and cautery along with deep injections of hydrogen peroxid, is at best insufficient. Preventive treatment — the removal of the foreign substance carrying the septic material into a hidden part of the body without an adequate drainage outlet—must be depended on to reduce the prevalence of the infection.

The unparalleled exigencies of the present war are responsible for more than wanton waste and cruel suffering. They give rise to an undeniable mental depression under conditions in which, despite the most commendable courage and endurance, the guarded traditions of success in surgery are overthrown and the highest scientific skill is hampered by the impossibility of exhibition. It is due to our colleagues at the front that the shortcomings of military surgery should be charged to their real source.

THE SUSTAINED INTEREST IN THE PROBLEM OF TUBERCULOSIS

The National Association for the Study and Prevention of Tuberculosis reports that $20,700,000 was spent last year in combating this disease in the United States.[3] Notwithstanding the immense sums expended, it is doubtful whether we are getting our money's worth in lowered death-rate, which is, after all, the final criterion by which the success or failure of the antituberculosis campaign must be determined. The seriousness of the problem is recognized by leaders of thought and activity in other vocations than medicine. Notable among these is Governor Craig of North Carolina, who devoted a considerable portion of his annual message to the subject.[4] His state has 18,000 cases of tuberculosis known to the health authorities. He estimates that the entire revenue of the state would be insufficient to care for all its tuberculous victims in sanatoriums, and he urges that some means be found to help those who cannot be accommodated in institutions.

Most of the legislation so far enacted for the control of the disease has tended to exaggerate the dangers from casual exposure, and to emphasize the value of segregation in sanatoriums at the expense of every other consideration. Evidence accumulates daily that tuberculosis is a house infection or family disease, and that the proper way to stamp it out is to remedy the home conditions which predispose to it. That it is preeminently a disease produced by intimate rather than casual contact is shown by recent investigations of the Public Health Service[5] and also by Lampson's survey of tuberculous families made for the Minnesota State Board of Health.[6] Carrington, Foster and Sweet of the Public Health Service studied the influence of the migrant consumptive on the health of the community to which he moves. These studies were conducted in North and South Carolina, Texas and New Mexico, and in none of the communities frequented by tuberculous persons in search of health was there the slightest indication of the spread of the disease from them to the native population. Lampson's investigation of the spread of the disease was an intensive study of tuberculous families in five Minnesota counties. A list was made of all deaths from tuberculosis for the year 1911 and previous to Aug. 1, 1912, and the surviving members of the families were then examined for evidences of the disease. Whenever there were no tubercle bacilli in the sputum, or positive physical signs, the von Pirquet test was used. Ninety-seven families were studied, and for individual members of these families 449 charts were made, which indicated the findings under the following heads: name, sex, age, nationality, social condition, school attended, height, weight, general appearance, nutrition, exposure, lungs, bones, joints, skin, glands, sputum, pulse, temperature and respiration. These results were tabulated to show the amount of infection from (*a*) complete exposure, that is, intimate exposure for a long time; (*b*) partial exposure, when the patient was away for part of his illness, or members of the family were away during that illness, and (*c*) doubtful exposure, when reported death was apparently from some other cause than tuberculosis.

While the amount of material is not large, the striking uniformity of results in the different locations adds weight to the findings, which were substantially as follows: Complete exposure of families resulted in a positive von Pirquet reaction in 79 per cent. of the surviving members of those families, whereas in partial exposure *the positive reactions were only 28 per* cent. In those classified as doubtful exposures, the positive reaction was still less frequent, only 8 per cent. of these showing evidences of infection. In the families exposed to pulmonary tuberculosis, 70 per cent. of the members showed signs of infection, and in those exposed to non-pulmonary tuberculosis 32 per cent., while in the non-tuberculous families only 8 per cent. presented any evidence of the disease.

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[2] The Bacteriology of the Wounds in the War, editorial, THE JOURNAL A. M. A., Jan. 30, 1915, p. 438. (Other references are given in that editorial.)

[3] Statistical Report of the National Association for the Study and Prevention of Tuberculosis, Jan. 2, 1915.

[4] Tuberculosis—An Important State Problem, Pub. Health Rep., Jan. 15, 1915, p. 145.

[5] Annual Report, Surgeon-General, U. S. P. H. S., 1915.

[6] Lampson, H. G.: The Spread of Tuberculosis, Pub. Health Rep., Jan. 8, 1915, p. 75.

In view of the increasing evidence that both the predisposing causes and the successful treatment of tuberculosis are inseparably bound up with the problems of the home, it is to be hoped that at least a part of the sustained interest in the subject be directed toward a rehabilitation of tuberculous families rather than ill-advised segregation of individual members.

THE HARRISON LAW A NATIONAL OBLIGATION

Both newspaper comments and professional criticisms indicate that there is much misunderstanding of the Harrison law, which has just gone into effect. Many physicians have *not fully grasped its purpose.* A brief statement of the history of the law may, perhaps, be of value.

The Harrison law is not the result of any sudden spasmodic impulse on the part of Congress. It is, on the contrary, a part of a carefully considered program for the control of the traffic in habit-forming drugs and especially in opium. This movement is not confined to this country; it is international, although the United States, it is a pleasure to record, has been the leader in the movement. It has been a part of the established policy of our government since the earliest relations with China and other oriental nations to discourage the opium traffic in the Far East. As early as 1833, a treaty with China forbade any American citizen engaging in the opium trade. In 1906, China began earnest efforts to crush out this evil. To aid her in this, the United States initiated an international movement to secure the cooperation of the leading Western nations. As a result, there met at Shanghai in February, 1909, the representatives of thirteen nations, comprising Austria-Hungary, China, France, Germany, Great Britain, Italy, Japan, the Netherlands, Persia, Portugal, Russia, Siam and the United States. This conference resulted in the establishment of the International Opium Commission, appointed to study the entire question and to submit recommendations. The next step was taken Dec. 1, 1911, when a conference of the powers represented in the Shanghai Commission was held at the Hague. Jan. 23, 1912, the members of the conference signed an agreement for a strict regulation of both national and international traffic in opium, morphin and cocain. To the carrying out of the program for the restriction of habit-forming drugs, *not only is our national* honor pledged, but also as leaders in this movement, it is the plain duty of our nation to initiate such legislation as may be necessary.

For the carrying out of our international obligations, three bills were drafted. The first, H. R. 1966, prohibited the importation of opium for any other than medicinal purposes. The second, H. R. 1967, prohibited the manufacture of smoking opium in the United States. Both of these bills became laws over a year ago. As there are only a few firms in the country which import opium and none which manufacture it, these laws affected a limited number of persons and so attracted little public comment. The third bill, H. R. 6282, which became a law Dec. 17, 1914, is the Harrison law, now going into effect. In various forms and under different names it has been before Congress for nearly six years. It does not forbid the sale of habit-forming drugs. Only state laws can do that in this country. It restricts traffic in them to persons engaged in legitimate businesses in order to make it possible to trace these drugs from the importer to the ultimate consumer. The suppression of illegitimate traffic in these drugs can be accomplished only by state laws properly drawn and enforced.

The object to be attained is the world-wide restriction of the use of opium and cocain to their proper medicinal purposes. In securing this, the sympathy and support of every right-minded man and woman should be forthcoming. But physicians, especially, as those who know better than any other class the dangers and ravages of drug addictions, should endorse and support in every way this effort for the uplifting of humanity, to which our national honor is pledged.

THE PHYSICIAN AND THE HARRISON NARCOTIC LAW

From the large number of inquiries received, it is evident that many physicians are in doubt as to what they are required to do under the Harrison law and what the law will do to them. So many misstatements on this subject have appeared that a brief summary of the purposes and requirements of the law may be reassuring.

The law affects the physician both as a prescriber and as a dispenser of drugs. The only effect it has on the former—the prescribing physician—is that it requires him to register with the collector of internal revenue of the district, and that in writing a prescription for narcotic or habit-forming drugs he must write thereon the name and address of the patient, have on the prescription his office address and his registry number, and sign his name in full. He can—and should, probably, if he has printed blanks—have his registry number printed on the blank. He need not keep either copies or records of prescriptions; this is done by the druggist. These prescriptions cannot be refilled. This is all there is to the Harrison narcotic law so far as it affects the prescribing physician. The only expense is in securing his license once a year, at a cost of one dollar. And the only facts to be kept in mind in writing prescriptions are that the patient's name and address must be written thereon and that the physician must sign his name in full—precautions, however, that should be taken on all prescriptions.

If the physician desires any of the specified drugs for his own use, he must then make out an order for them on a blank form bearing his registry number. These blanks are furnished by the Internal Revenue Department in packages of ten for ten cents. The physician cannot order drugs for his own use on a prescription blank.

If a physician is in personal attendance on a patient, he can administer any treatment he sees fit in the form of hypodermic injection, sprays, applications, etc. If he orders a nurse to give such treatment, then the written order must appear in the history sheet with the physician's initials. The statement recently appeared in a druggists' journal that an official ruling had discriminated between a visit to the patient at his home and personal treatment of a patient by a physician at his office, and that one was personal attendance and the other was not. This statement is without foundation. No such ruling has been made.

If a physician dispenses his own drugs, then he must conform to the same restrictions as a druggist. He must order the drugs specified by this law on the blanks furnished by the internal revenue collector, and he must keep a record of the dispensing of such drugs, the date, the quantity and the name and address of the person to whom they were given. This record must be kept in a "suitable blank book," and must be preserved for two years. Drugs dispensed while the physician is in personal attendance on the patient do not need to be recorded. Neither do preparations which do not contain more than 2 grains of opium, ¼ grain of morphin, ⅛ grain of heroin or 1 grain of codein.

These provisions are simple and need cause the physician little annoyance. The great majority of physicians write prescriptions. Physicians who dispense, only occasionally dispense preparations of narcotic drugs. The restrictions for both classes are simple and easily observed. The cost for all physicians is the same, a nominal fee for registration, a small cost for order blanks. Additional rules may be found necessary as the law is enforced, but there is at present nothing that need cause physicians any inconvenience or annoyance.

But what about old habitués, persons suffering from painful and incurable diseases, and others to whom opium in some form is absolutely necessary? Every physician knows of such cases. For them the physician so long as he complies with the law of his own state can prescribe whatever he sees fit. But it must be done openly and without attempt at evasion and the physician must be ready and able at any time to justify his acts. The whole purpose of the law is to restrict the use of opium and cocain to legitimate channels.

THE PREVENTION OF INFANTILE SCURVY

The widespread employment of pasteurized milk and the growing use of this food in the dietary of young infants have brought with them certain inherent dangers which need to be recognized quite as clearly as the advantages of the pasteurization process are appreciated. It is not the intention to discuss at this time the reasons which are responsible for the current practice in the treatment of most milk prior to its distribution before use. The arguments are well known to the majority of the members of the medical profession and they have won the approbation of most hygienists. The feeling of safety against serious infection has an undoubted justification in the present organization of the milk industry.

There are, however, attendant dangers which should be widely known because they are easily averted. Infantile scurvy may readily develop in infants that are fed largely, if not exclusively, on pasteurized milk. This is true not only when the milk is heated carefully to a temperature of 165 F. for twenty minutes, but also with the product obtained after the more conservative pasteurization at only 145 F. for thirty minutes.[1] Pasteurized milk may not be the sole factor in the production of infantile scurvy; but the important rôle which it plays has been shown by the prompt disappearance of all symptoms when unheated milk is substituted for the pasteurized milk, the formula and amount of food remaining unchanged. For these facts there exists the evidence of careful observers.[1]

We are aware that the French clinicians in particular oppose the charge that the heating of milk can produce a product which may develop scurvy. Boiled milk appears to have been fed by them without detriment in thousands of cases. Nevertheless, Hess and Fish point out that whatever the explanation of such results may be, it must be remembered that these statistics refer to patients treated in dispensaries, and that they were not observed under ideal conditions. There can be no doubt that milk loses some of its antiscorbutic qualities as the result of heating, though the cases that develop from the use of a food pasteurized at 145 F. may be rather mild. They may show petechial hemorrhages, some tenderness of the bones, a very slight degree of peridental hemorrhage, yet fail to evince any tendency to progress. In such instances Hess and Fish suggest that there seems to be almost, if not quite, a balance between the demands of the body and the supply in the diet of the essential substances concerned in the scorbutic phenomena.

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[1] Hess, A. F., and Fish, Mildred: Infantile Scurvy; The Blood, The Blood-Vessels and the Diet, Am. Jour. Dis. Child., December, 1914, p. 385.

The use of antiscorbutics in these cases is, of course, a procedure familiar to all pediatrists. The general practitioner is more often oblivious of both the dangers lurking in the exclusive use of heated milk and the corrective agents which are available. Although raw milk contains sufficient of the essential substances to prevent the development of scurvy, its antiscorbutic potency is mild compared with what has been termed the "miraculous change" which is brought about by giving orange juice. One ounce of this given daily suffices to avert nutritive disaster.

Hess and Fish[1] have acquired some interesting new experiences in relation to this potent antiscorbutic, which is so widely available and easily administered to children at all ages. The efficacy of vegetables is distinctly inferior to that of orange juice. Satisfactory results appear to follow the routine use of orange juice that has been boiled five to ten minutes. It is surprising that heat apparently does not lessen the therapeutic value in the case of this fruit product, because studies on animals subjected to experimental scorbutus[2] have indicated that the antiscorbutic property of such plant materials as cabbage is readily destroyed by cooking.

It appears further from the experience of Hess and Fish that the juice of orange peel, prepared by extraction with water and sugar, serves the same purpose as the liquid expressed from the interior of the fruit. This means an economy in large institutions. Potato—not potato flour—likewise has been found efficacious, though not in the same rapid degree as orange juice. It is suggested that this vegetable may be added to pasteurized milk as potato-water (made by boiling potato in water) instead of the barley-water which is now commonly used as a diluent. This is in harmony with the fact that epidemics of scurvy in adults have been reported in countries where the potato crop has failed.

Not long ago the potency of butter-fat, egg-fat, and cod liver oil in facilitating the growth of young rats under conditions of diet adequate in respect to energy but lacking some growth-promoting factor was pointed out in connection with the nutrition studies of McCollum and Davis and Osborne and Mendel.[3] Hess and Fish have found that cod liver oil did not prevent the development of scurvy in infants. This distinction should be borne in mind in connection with the current discussion of "vitamins" and diet deficiency diseases.[4] The substances concerned in the prevention of scurvy and beriberi, or in the promotion of growth presumably have no direct relation to each other; and however essential to life they may be, we are not yet in a position to group them collectively into association with so promiscuous a category as the proposed "avitaminoses" of Funk. Each deficiency must be studied independently.

Incidentally, the desirability of having some helpful guide to the onset of scurvy leads us to quote the proposed "capillary resistance test" of Hess. It consists in subjecting the capillaries and vessels of the arm to increased intravascular pressure, by means of an ordinary blood-pressure-band, and of observing whether this strain results in the escape of blood through the vessels—the appearance of petechial hemorrhages into the skin. The vessels of normal infants were found to withstand, without apparent disturbance, 90 degrees of pressure for three minutes, whereas the vessels of infants suffering from scurvy gave way under this pressure. The test is not specific for scurvy, but is a method of demonstrating a weakness of the vessel walls, whatever may be its cause.

Current Comment

REASON FOR THE FAITH WITHIN US

Sometimes, though not often, we are asked why The Journal does not "let up" on the subject of fraud in medicine, especially as it applies to the "patent medicine" evil. Our best answer to such an inquiry would be to ask the person making it to spend a few days in this office and read some of the letters that come from the public and the profession relative to the subject. This, of course, is impracticable, and the best we can do is, occasionally, to give such letters publicity. Many of the communications of this type—and therein lies the tragedy of it—are privileged and could not with propriety be printed. Some, however, are available. The two letters that follow are from widely different sources, the first from a physician in Tennessee and the second from a woman in New Hampshire. While, in a way, they deal with subjects that are as widely separated as their geographical sources, yet they both point in the same direction and they both call for a common remedy. Here is the letter from Tennessee:

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The point raised by the doctor exposes the rottenness of the nostrum business from a new angle. There is no doubt that the problem he presents is by no means an uncommon one, especially in the rural districts, and among the poorer classes. Nostrum manufacturers frequently refer to their preparations as the "poor man's medicine." In the same way the beneficiaries of the low-grade commercial medical schools have called these institutions the "poor boy's school"; and in the same way, too, the manufacturers of adulterated and sophisticated foodstuffs try to justify their products by referring to them as the "poor man's food." The argument is as fallacious in one as in the others. The woman from the New England village wrote:

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NEW YORK'S NEW SANITARY CODE

Under the new health law in New York, enacted in 1913, a public health council is created whose duties, among other things, is to establish sanitary regulations dealing with "matters affecting the security of life or health or the preservation or improvement of public health" in the state outside of New York City. The council consists of the commissioner of health and six appointive members who share with the commissioner responsibility for health regulations. They are charged with the duty of prescribing the qualifications of directors of divisions, sanitary supervisors, public health nurses, registrars of vital statistics and local health officers. In the first report of the council issued as a part of the Thirty-Fifth Annual Report of the State Department of Health for 1914, it is said that in framing the sanitary code the council aimed to secure "the advantages which science and experience, especially during the last quarter of a century, have offered in the prevention of disease and in the promotion of the common welfare, with the least possible interference with the business, comfort and convenience of the people concerned." Heretofore the enactment of sanitary regulations has been exercised by over fourteen hundred local boards of health with consequent lack of uniformity and effectiveness. Under the present law the state is divided into sanitary districts in each of which a sanitary supervisor counsels and assists the local health officers in carrying out the provisions of the code established by the council. So far seven chapters of the code have been enacted, the first covering definitions and general provisions; the others relate to communicable diseases, production and handling of milk and cream, the practice of midwives, labor camps, nuisances, and miscellaneous subjects such as spitting, the common drinking cup, the common towel, barber shops, etc. It will thus be seen that the code as so far provided covers many of the important features of public health regulation and disease prevention. The outstanding and most valuable feature of the law providing for the council is the uniformity secured by the establishment of a code governing all health bodies, particularly as applied to the handling of epidemics of the communicable diseases, the protection of milk and food supplies, etc. Elasticity is given to the code by the provision that regulations in addition to those prescribed by the code may be made by local health bodies, provided they do not contravene the provisions of the general code. In framing the code, the council states that it has attempted to make it comprehensible to the citizens, not burdensome, and has eliminated useless sanitary procedures and obsolete quarantine regulations. The seven chapters of the code are set forth in the report.

THE SOURCES OF ENERGY FOR THE HEART

There is a prevailing sentiment, based on convincing experiments gathered during several decades, that, under ordinary circumstances of diet and environment, muscular activity has hardly any influence on the metabolism of the proteins. The source of energy for the contraction of our muscles is in general to be sought in non-protein stores of supply, particularly in carbohydrates. Every text-book teaches these now familiar facts, although the dietary practices of the athlete and his "trainer" often are at direct variance with the suggestions of the science of nutrition. A striking way in which to demonstrate the nature of the energy metabolism of muscle is furnished by the surviving isolated heart, which can now literally be made to beat for hours and even days after its separation from the organism. From experiments with such a test object engaged in characteristic work, it has become plain that carbohydrate is used up by the contracting cardiac musculature. Although the evidence already obtained with contracting isolated muscles has been negative with respect to the participation of proteins in its energy requirement, the newer facts of the chemistry of nutrition have seemed to warrant added trials. Now that the modern researches have made it clear that the nitrogenous intake reaches the tissues, including the musculature, in the form of amino-acids, the rôle of these compounds as the immediate representatives of the nitrogenous pabulum remained to be investigated. Buglia[1] has accordingly perfused surviving hearts with Ringer's solution to which representative amino-acids — glycocoll, alanin, tyrosin, aspartic and glutamic acids, asparagin or glutamin — were added in various concentrations. Despite the continued functioning of the musculature, neither the added nitrogenous substance nor any of those present in the cardiac tissue itself were indicated by Buglia's analyses as having been used. The expected happened.

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[1] This fraud is described in the pamphlet "Consumption Cure Fakes," price 10 cents.

[1] Buglia, G.: Déterminations d'azote titrable au formol dans le liquide qui a circulé à travers le coeur isolé de mammifère, Contribution aux recherches sur l'exchange azoté du tissu musculaire, Arch. ital. de biol., 1914, lxi, 277.

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There is a prevailing sentiment, based on convincing experiments gathered during several decades, that, under ordinary circumstances of diet and environment, muscular activity has hardly any influence on the metabolism of the proteins. The source of energy for the contraction of our muscles is in general to be sought in non-protein stores of supply, particularly in carbohydrates. Every text-book teaches these now familiar facts, although the dietary practices of the athlete and his "trainer" often are at direct variance with the suggestions of the science of nutrition. A striking way in which to demonstrate the nature of the energy metabolism of muscle is furnished by the surviving isolated heart, which can now literally be made to beat for hours and even days after its separation from the organism. From experiments with such a test object engaged in characteristic work, it has become plain that carbohydrate is used up by the contracting cardiac musculature. Although the evidence already obtained with contracting isolated muscles has been negative with respect to the participation of proteins in its energy requirement, the newer facts of the chemistry of nutrition have seemed to warrant added trials. Now that the modern researches have made it clear that the nitrogenous intake reaches the tissues, including the musculature, in the form of amino-acids, the rôle of these compounds as the immediate representatives of the nitrogenous pabulum remained to be investigated. Buglia[1] has accordingly perfused surviving hearts with Ringer's solution to which representative amino-acids — glycocoll, alanin, tyrosin, aspartic and glutamic acids, asparagin or glutamin — were added in various concentrations. Despite the continued functioning of the musculature, neither the added nitrogenous substance nor any of those present in the cardiac tissue itself were indicated by Buglia's analyses as having been used. The expected happened.

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[1] This fraud is described in the pamphlet "Consumption Cure Fakes," price 10 cents.

[1] Buglia, G.: Déterminations d'azote titrable au formol dans le liquide qui a circulé à travers le coeur isolé de mammifère, Contribution aux recherches sur l'exchange azoté du tissu musculaire, Arch. ital. de biol., 1914, lxi, 277.

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Personal.—Dr. Paul B. Means, Concord, has been appointed assistant physician to the New Jersey Hospital for Nervous Diseases, Skillman.——Dr. Arthur S. Pendleton, Raleigh, a member of the staff of the State Hospital, is ill with diphtheria.

NORTH DAKOTA

Personal.—Dr. William F. Maertz, Lidgerwood, has been appointed a member of the State Board of Medical Examiners, vice Dr. Frederick G. Benn, Kulm, resigned.——Dr. Louis W. Meckstroth, Wahpeton, announces his retirement from practice and that he will devote his time to the care of the estate of his sister.

Hospital News.—Governor Hanna suggests to the state legislature that efforts be made to induce the United States government to establish the proposed hospital for the treatment of tuberculosis among the Indians of North Dakota near the North Dakota State Tuberculosis Sanatorium, Dunseith, and not 15 miles east of it, as is at present contemplated. He advises that petition to this effect be sent to the government, as in his belief the two institutions, if located near each other, could cooperate and work in harmony to mutual advantage.——The new St. Alexius Hospital, Bismarck, was formally opened, February 15. The institution has four six-bed wards, besides sixty private rooms.

OHIO

Camp Renamed.—At a meeting of the directors of the Children's Fresh Air Camp of the Cleveland Federation of Charities and Philanthropy, February 16, eight additional directors were elected, and the name of the institution was changed to the Children's Fresh Air Camp and Hospital.

Personal.—The appointment of Dr. J. Morton Howell, Dayton, as a member of the State Board of Health, has been confirmed by the senate.——Dr. W. H. H. Woland, Lindsey, is reported to be in a critical condition as the result of a cerebral hemorrhage.——Dr. George F. Zinninger, Canton, who was operated on in January at Rochester, Minn., has recovered and returned home. A reception was tendered him in his home, February 18, by the medical profession of the city, and Dr. Alonzo B. Walker, Canton, on behalf of the physicians, presented him with an office lamp.——Dr. Fred A. Cobb, Toledo, who has been seriously ill with erysipelas, is reported to be convalescent.——Dr. Henry J. Pool, Port Clinton, has lost the sight of one eye as the result of a gas explosion.

OKLAHOMA

Hospital Incorporated.—The Cushing Hospital Company has been incorporated with a capital stock of $4,000 and bids have been asked for a two story, twenty-five room brick hospital building.

Personal.—Dr. Powell Hayes, Frederick, has been appointed assistant physician at the Vinita State Hospital.——Dr. William G. Kiebler, Goltry, sustained a Colles fracture of the arm while cranking his automobile recently.——Dr. John W. Duke, Guthrie, has assumed the duties of state health commissioner, succeeding Dr. John C. Mahr, Shawnee.——Dr. George D. McLean, Oklahoma City, who recently underwent an operation for the removal of gall-stones, has fully recovered.

PENNSYLVANIA

Nurse Appointed for Exposition.—Miss Alice M. O'Halloran, chief nurse in State Department of Public Health, has been designated by Dr. S. G. Dixon, state health commissioner, to go to San Francisco to be in charge of the health department's exhibit in the state building.

Barbers Must Stand Medical Test.—The order recently issued by the Cresson Board of Health requiring all barbers to be sound physically, is rigidly enforced, and notices are being posted in Cresson announcing that all barbers will have to submit to medical examination. Milk dealers will have to submit health certificates and observe sanitary rules on their farms.

Personal.—Dr. Benjamin J. Millard, Mt. Carmel, who has been confined to the house on account of a fracture of the hip, is convalescent and has resumed practice at his office.——Dr. Clayton D. Fretz, Sellersville, has been appointed a member of the board of trustees of the Norristown State Hospital.——Dr. John F. Bryson, Girardville, was operated on recently at the Miner's Hospital, Pottsville, and is doing well.——Dr. John B. Cressinger, Sunbury, who has been ill with pneumonia, is convalescent.

Philadelphia

Patent Medicine Destroyed.—More than 4,000 bottles of "Father John's" medicine, siezed by the government of this city in 1912 on a charge that they were misbranded and misled the public, were condemned and ordered destroyed, February 18, under a decree filed in the United States district court.

Nation-Wide Sanitation Campaign Advocated.—Prof. Charles Wardell Stiles of the Rockefeller Foundation delivered the ninth Weir Mitchell lecture at the College of Physicians, February 16, in which he advocated a nation-wide campaign for sanitation as the only means of stamping out communicable diseases.

Midwinter Smoker.—The midwinter smoker of the Alumni Association of Jefferson Medical College was held in the roof garden of the Hotel Adelphia, March 4. Dr. William W. Keen, emeritus professor of surgery at the college, gave an informal talk on "The Contrast Between the Surgery of the Civil War and that of the Present War."

New System in Health Crusade.—Three hundred bulletin boards, to furnish health information to the most congested housing districts of the city, will be erected in courts and alleys by the child federation. Health talks prepared by the new federation council will be printed in English, Italian, Yiddish, German, Hungarian and many other languages required by the various neighborhoods.

Postgraduate Clinics.—The course of postgraduate clinics on the heart and lungs given Friday afternoon, 5 to 6 o'clock, in the amphitheater of Philadelphia General Hospital, include the following for March 5: Tricuspid and pulmonary-valve lesions; relation of the heart and lungs in disease; March 12, angina pectoris, true and false; March 19, heart block and Stokes-Adams syndrome, and March 26, cardiac neurosis (so called). Physicians are cordially invited to participate.

Personal.—The house of Dr. Nathan Blumberg was destroyed by fire, February 20.——Dr. George H. Shuman has resigned from the department of health and charities to engage in private practice.——Dr. Aaron Brav has been appointed ophthalmologist to the Jewish Hospital to fill the position left vacant by the recent death of Dr. Isaac Leopold.——Dr. Robert R. Bensley of the University of Chicago will deliver the tenth Rush Society lecture of the University of Pennsylvania, March 10.

University of Pennsylvania Alumni.—The Philadelphia Alumni Society of the medical department, University of Pennsylvania, at the annual meeting, voted to increase the Dr. Roland G. Curtin Scholarship Memorial Fund with $250 of last year's surplus. The annual election of officers resulted as follows: president, Dr. William D. Robinson; honorary vice-president, Dr. E. F. Smith; vice-presidents, Drs. Howard A. Sutton, William F. Guilfoyle and James A. Kelly; corresponding secretary, Dr. Benjamin F. Stahl; recording secretary, Dr. J. Milton Griscom, and treasurer, Dr. Morris Booth Miller.

TEXAS

Plague Appropriation Measure Killed.—The Clark bill appropriating $25,000 for the use of the state health officer in the prevention of the entrance of plague into the state, was defeated in the state senate after having passed to engrossment.

Vaccinations at Laredo.—On account of the epidemic of smallpox at Nuevo Laredo, Mexico, February 21, the physicians in the immigration service at Laredo, Texas, compelled the vaccination of every person coming into the United States from the Mexican side. Many persons came over to celebrate Washington's birthday and some thousands attended the bull fight in the Mexican town. On their entrance into the state all were vaccinated.

Personal.—Dr. Casper R. Byars, Bay City, has been appointed health officer of Matagorda County.——Dr. John E. McClung, Corsicana, has been appointed specialist on diseases of the eye, ear, nose and throat at the State Orphan Home.——Dr. Edgar L. Gilcreest, Gainesville, left for Washington, February 14, to report for duty at the headquarters of the American National Red Cross. He will be stationed at the American Hospital, Paignton.——Dr. Thomas B. Bass has been reelected superintendent of the State Epileptic Colony, Abilene.

County Society to Build Bungalow.—The proposition to erect a building exclusively for officers of the Bexar County, San Antonio, Medical Society, and another proposition to lease offices together in an office building having been rejected by the organization, the committee on the general project of quarters for the organization and joint offices for members, have reported in favor of the construction of a one-story fireproof building, of bungalow type, giving a spacious meeting hall, 30 by 44, a pathological museum and a smoking hall, and their report was unanimously adopted. The building, as proposed, will cost about $20,000.

CANADA

Clearing Hospital from Quebec.—The Canadian militia department has sanctioned the formation of a French-Canadian casualty clearing hospital in connection with the army medical corps for overseas service. It will consist of one lieutenant colonel, two majors, one quartermaster, two junior officers, nine surgeons, seven corporals, and fifty rank and file. There will be no nurses. The hospital is being organized under the auspices of Laval University.

Reciprocity with Great Britain.—The Ontario legislature, now in session, is considering a measure to provide for reciprocity between the Ontario Medical Council and the Medical Council of Great Britain. When this measure (and there appears to be no opposition to it) is passed, the Ontario practitioners who are volunteering for the war will be enabled to practice in the hospitals and have charge of the hospitals it is proposed to equip and send across the Atlantic in the near future.

University News.—If the 1,800 students of the University of Toronto, who are at present in training go to the front, the university will be seriously handicapped. Their fees for a year would amount to $151,000, which will be lost to the institution. There would be still left 2,700 students out of the present total of 4,500. Last year's deficit amounted to $87,000.

The medical department will suffer most severely. It is understood that the entire staff, to the number of ninety, has volunteered, but it is not likely that all will be accepted.

Personal.—Dr. Andrew Croll, Saskatoon, has been accepted on the staff of the General Hospital with the Second Canadian expeditionary force.——Dr. Mary E. Crawford, Winnipeg, has been elected president of the Political Equality League.——Lieut.-Col. John Taylor Fotheringham, M.D., Toronto, has been appointed chief of the medical staff of the Second Canadian Overseas Force.——Surg.-Gen. Carleton Jones, director of the Canadian Army Medical Service, who is in England with the First Contingent, has left for France to establish a clearing hospital so that all Canadian wounded may be sent to the Duchess of Connaught Hospital at Cliveden, in Buckinghamshire.

GENERAL

Leprosarium Bill Passed by House.—A bill to authorize the establishment of a home for lepers under the United States Public Health Service was passed by the House of Representatives, February 25, and sent to the Senate.

Tri-State Physicians Meet.—The seventeenth annual session of the Tri-State Medical Society of the Carolinas and Virginia was held in Charleston, S. C., February 17 and 18 under the presidency of Dr. Edward C. Register, Charlotte, N. C., and the following officers were elected: president, Dr. James H. McIntosh, Columbia, S. C.; vice-presidents, Drs. Gottlob A. Neuffer, Abbeville, S. C.; Carl V. Reynolds, Asheville. N. C.; and Beverley R. Tucker, Richmond, Va.; and secretary-treasurer, Dr. Rolfe E. Hughes (reelected), Laurens, S. C.

Service May Not Have Expert Engineer.—Controller Downey of the Treasury has ruled that the office of sanitary expert engineer for the Public Health Service may not be created nor salary paid under the existing law. The cause of this action was the opinion expressed by Surgeon-General Blue that such expert assistants were needed in the prevention of interstate spread of diseases, including typhoid fever and bubonic plague. General Blue also indicated that many states and municipalities are willing to undertake work for the eradication of disease liable to interstate spread, provided they can receive experts' advice from the Public Health Service, and this advice only a sanitary engineer would be qualified to give.

Bequests and Donations.—The following bequests and donations have recently been announced:

Home for Destitute Crippled Children and Mary Thompson Hospital for Women and Children, Chicago, each $100,000 by the will of Alexander A. McKay.

Columbia University, for research in the cause, prevention and cure of cancer, $100,000; Hebrew Orphan Asylum, New York City, Stoney Wold Sanatorium, Loomis Sanatorium and New York Skin and Cancer Hospital, each $10,000; Mt. Sinai Hospital, New York City, $20,000, one-half of which is for the dedication of two beds in memory of the testator's parents; Presbyterian Hospital, $5,000, and also $7,500 for the endowment of a bed in memory of Margaret Carson Rowan; St. Luke's Hospital, Montefiore Home, and Hospital Saturday and Sunday Association, $5,000; German Hospital and Crippled Children's East Side Free School, New York City, each $2,500, by the will of Emil C. Bondy, New York City.

National Committee on Mental Hygiene, a donation of $44,500 by Mrs. Elizabeth Milbank Anderson and one of $40,000 by Mrs. William K. Vanderbilt.

Rockefeller Foundation, an appropriation to retain the services of medical director Dr. Thomas W. Salmon, for three years.

New York Foundling Hospital, $2,000 by the will of Rosanna M. Nagle.

Howard Hospital, Philadelphia, $5,000 to establish a free bed to be known as the Annie E. Ulmer bed to be devoted to the use of female patients.

Philadelphia Hospital for Women, $1,000 by the will of Annie E. Matthew.

Presbyterian Hospital, Philadelphia, $5,000 by the will of Anna E. Teal.

Germantown Hospital, $5,000 by the will of Louisa C. Rodney.

FOREIGN

Statue of Florence Nightingale.—The cable brings word that a statue of Florence Nightingale was unveiled at London, February 24. It is the first instance in which a statue of a woman, aside from royalty, has been erected publicly in London. The figure bears a lamp in the right hand. It forms a part of the Crimean memorial group in Waterloo place, the cost of which was provided for by small subscriptions.

Orthopedic Hospital and Training School Inaugurated at Vienna.—Prof. H. Spitzy is at the head of this new institution for cripples, which comprises a dispensary, a hospital and a training school, each in a separate building, formerly a school building. There are beds for 1,000, and 600 are already filled. The training school has facilities for teaching twenty-one trades, and arrangements are already under way to enlarge its quarters.

Deaths in the Profession Abroad.—L. Laquer, a leading neurologist and medicolegal expert, died at Frankfurt a.M., aged 57. His works on feeble-minded children, kleptomania and electrotherapy of nerves are particularly well known.——J. Arnold, professor of pathologic anatomy at the University of Heidelberg, died recently, aged 79. Among the special subjects studied by him were inhalation of dust and the anatomy of the eye in the embryo.——Prof. Robert von Olshausen, the senior member of the medical faculty of the University of Berlin and honorary president of the national society of obstetricians and gynecologists, died February 2, aged 80. He was one of the leaders in modern gynecology and its publications.

WAR NOTES

Death of Dr. Kara.—Dr. John M. Kara, one of the three physicians in the Bohemian-American Red Cross unit sent to Servia, died recently of typhus fever. He was a native of Chicago, a graduate of the University of Illinois Medical Department in 1910.

Belgian Field Hospitals Need Aid.—The wife of Antoine Depage, the famous surgeon of Belgium, is visiting in America as the personal representative of the king and queen of Belgium, to seek financial and other aid for the field hospitals of the Belgian Red Cross. There is a woful lack of ambulances and field hospital appliances and personnel, and the wounded have suffered terribly from the lack of proper accommodations.

Disease Carriers Found.—Lieut.-Col. John T. Fotheringham, Toronto, chief surgeon of the Second Canadian Expeditionary Force, has discovered five meningitis carriers among the members of one of the kitchen fatigues, although the carriers themselves were not suffering from the disease. To further minimize the danger of the disease, Colonel Fotheringham has ordered 2,000 doses of meningitis prophylactic serum to immunize the men against the disease. There have been eight cases of meningitis thus far at the exhibition camp, with one death.

Medical Committee on Food for the Populace in Germany.—Kirchner is at the head of a committee, mainly of physicians, appointed to educate the public in economy of foodstuffs. Addresses and demonstrations are to be held, medical men teaching the principles of rational diet, and trained cooks giving demonstrations in the school buildings. Pamphlets and circulars are also being published to aid in the campaign for economy. The committee includes also representatives from national women's organizations, insurance societies and others.

Nostrums and the War.—The German authorities have been constrained to issue a warning against certain donations to the troops which the heedless buy, on the manufacturers' claims, to send to friends at the front. One article in particular is specified, "the so-called Microcid Tablets, manufactured for our soldiers in the field" and claimed to be a "sure protection against cholera, typhus, dysentery, etc., as it clears the water of germs in two minutes." A warning is also issued against certain portable filters that are advertised as suitable gifts for the men in the trenches. "Another article in regard to which a warning has been issued, is Eusitin, which is alleged to keep up the strength when food is not available. This marvellous action is ascribed to the content of 0.2 gm. dry extract of mallow in each box."

Red Cross Activities.—Several large shipments of hospital supplies and clothing have been started across the Atlantic by the American Red Cross in the last few days. Thirteen of the seventeen light motor ambulances contributed by Yale and Harvard universities have been shipped and the remainder will be sent very shortly. Of these, four each are consigned to the French, German, Austro-Hungarian and British Red Cross and one ambulance is to go to the Belgian Red Cross.——To the British Red Cross, 2,000 pounds of chloroform, 15 bales of blankets and 11,000 pounds of absorbent cotton have been sent.——Two consignments of hospital and miscellaneous non-combatant relief supplies were sent to France by the American Red Cross on the steamer *Rochambeau*. One of these shipments consists of 255 boxes including 9 cases of tetanus, typhoid and diphtheria antitoxin and is consigned to the American Relief Clearing House in Paris and the second consignment is addressed to Dr. Robert Fitch, in charge of a large military hospital in Yvetot, France.——The American Red Cross has also delivered to the Russian-American line in New York for shipment on the steamer *Kursk* as soon as navigation opens, 150 cases of hospital and non-combatant relief supplies for Poland, addressed to Warsaw, 189 cases of medical and surgical supplies for the Russian Red Cross at Petrograd and 40 cases for the American Hospital, Petrograd, which has been fitted out by the American Red Cross.——The Mayor of Pau, where two American Red Cross units have been stationed for several months, pays eloquent tribute to the work of the surgeons and nurses attached to the units and extends to the American Red Cross the official expression of the gratitude of the municipal authorities of Pau, the wounded and of the medical fraternity of the city.

Aid for Belgian Physicians.—It will be noticed that six instances are mentioned below and others have been published of the interest of medical societies in this cause. This should be encouraged. There are thousands of physicians who would gladly give a small sum—say a dollar or two—all they can afford, but who do not feel like sending such a small amount, and therefore send none. We suggest that officers of county societies consider whether they cannot aid in this humanitarian work.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession for the week ending Feb. 27, 1915, lists the following contributions:

The Monmouth Medical Club, Monmouth, Ill.	$ 10.00
The Adams Co. Med. Soc., Quincy, Ill.	42.00
Dr. Charles H. Smith, Uniontown, Pa.	25.00
Dr. Frederick J. Walter, Daytona, Fla.	10.00
Dr. Austin C. Brant, Canton, Ohio	5.00
Dr. William D. Byrne, Chicago, Ill.	5.00
Dr. Simon Levin, Lake Linden, Mich.	5.00
Dr. Miles F. Porter, Fort Wayne, Ind.	5.00
Dr. Joseph L. Duncan, Pittsburgh, Pa.	10.00
Dr. James M. Patton, Vandergrift, Pa.	1.00
Dr. Neri B. Williams, Perkasie, Pa.	1.00
Dr. Wilson F. Phillips, Dorchester, Mass.	5.00
Dr. Donald C. Balfour, Rochester, Minn.	25.00
Dr. Austin Flint, Jr., New York, N. Y.	25.00
Dr. Evan T. Steadman, Hoboken, N. J.	10.00
Dr. John B. Nichols, Washington, D. C.	10.00
Dr. Hermann G. Klotz, New York, N. Y.	5.00
Dr. George P. Coopernail, Bedford, N. Y.	5.00
Dr. Kay I. Sanes, Pittsburgh, Pa.	25.00
Dr. Herman F. Vickery, Boston, Mass.	25.00
Dr. Henry H. Atkinson, Fordyce, Ark.	5.00
Dr. Archibald MacLaren, St Paul, Minn.	25.00
Dr. Helen G. Putnam, Providence, R. I.	5.00
Maricopa Co. Med. Soc., Phoenix, Ariz.	25.00
Dr. John D. S. Davis, Birmingham, Ala.	5.00
Dr. James M. Popp, New Castle, Pa.	5.00
Dr. Horace Binney, Boston, Mass.	5.00
Dr. Warren Wilson, Northfield Minn.	5.00
Dr. Gibbs Biscoe, Pendleton, Ark.	5.00
Dr. Eleanore F. Boulton, Philadelphia, Pa.	5.00
Dr. Orr L. Perry, Elkins, W. Va.	2.00
Dr. John P. Getter, Belleville, Pa.	2.00
Dr. W. H. Witt, Nashville, Tenn.	5.00
Salt Lake Co. Med. Soc., Salt Lake City, Utah	50.00
New York Medical Union, New York, N. Y.	100.00
The Montgomery Co. Med. Soc., Dayton, Ohio	304.50

Receipts for week ending February 27		$ 807.50
Previously reported receipts		3,579.00
Total receipts		$4,386.50
Previously reported disbursements	$3,575.00	
Disbursements for week ending February 27, 352 boxes of food at $2.30	809.60	
Total disbursements		$4,384.60
Balance		$ 1.90

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

LONDON LETTER

London, Feb. 11, 1915.

The War

THE PREVENTION OF DISEASE

This is the first war in which we have had an organized sanitary service. It was established some years ago and has gradually been perfected. The importance of disease in war is shown by the fact that in our Napoleonic wars only 3 per cent. of the deaths were due to wounds, 97 per cent. being due to disease. So far the amount of illness has been very small. The greater part has been due to wet and cold, which is easily explained by the long hours in wet trenches. The army medical department has issued a small leaflet to officers explaining the steps that should be taken to prevent frostbite. This condition is three times as common among the men as the officers, and is presumably due to the fact that the latter have better boots, leggings and equipments generally. Cases of typhoid fever are very rare and have occurred almost entirely among the uninoculated. Hence opinion in favor of making inoculation compulsory is growing, and Lord Kitchener has gone so far as to curtail the leave of men who are uninoculated. Of course an outcry has been made by the antivaccinationists and antivivisectionists against what they call the "terrorizing" of men who object to inoculation. Speaking in Parliament on behalf of the government, in reply to these cranks, Dr. Addison pointed out that whereas in the South African war when inoculation was in its infancy we had 58,000 cases of typhoid fever, we have had only 421 up to the present in this war.

THE SCARCITY OF SYNTHETIC DRUGS

As stated in previous letters, a beginning has been made in manufacturing some of the more important synthetic drugs for which in the past we have been almost entirely dependent on Germany. At the same time attention has been called to the fact that we are perhaps far better without the enormous and constantly increasing number of synthetic drugs which Germany produces. At the Pharmaceutical Society, Mr. C. A. Hill read a paper in which he said that if a German chemical factory is producing on a large scale a certain chemical compound, and in the manufacture of that compound a by-product is obtained for which there is no obvious outlet, the research staff and ancillary to that laboratory factory sets to work to find an outlet. The by-product may be put on the market and boomed as such, or it may serve as the raw material for the preparation of some other substance. In the *British Medical Journal*, reference is made to a recent meeting of the Newcastle Section of the Society of Chemical Industry. Mr. N. H. Martin expressed the opinion that the success of certain synthetic drugs, such as antipyrin, was responsible for the lowering of the scientific value of German chemical work in recent years, and quoted the following passage from an address he delivered in 1899: "Hardly a month passes but that some new substitution compound with a trivial name to indicate its alleged medicinal properties, and a scientific name intended to suggest profound research, is introduced to English medicine. They come with laboratory and medical reports attested by men with university degrees, couched in language calculated to deceive the very elect, but the touchstone of practical trial reveals how science has been prostituted to commercial ends, and the substances one after the other, passed to oblivion."

THE INCREASED COST OF FOOD

In Parliament a motion regretting the rise in price of the necessaries of life, and calling on the government to endeavor to prevent this consequence of war, was brought forward by a labor member. The premier, Mr. Asquith, in reply pointed out that the rise was substantially below the level which the most sober-minded and best-informed judgments in the country would have apprehended or anticipated from a war involving almost the whole civilized world. Moreover, the level of prices does not exceed and in many respects falls short of the level which most of those who were now living have experienced in times of peace. Taking the four necessaries of life, wheat is now 72 per cent. higher than at the corresponding time last year; British meat, 6 per cent.; foreign meat, 12 per cent.; sugar, 72 per cent. (but as the price was abnormally low last year the increase is only 43 per cent. on the average of the last three years); and coal, 15 per cent. From 1871 to 1875, after the conclusion of the Franco-German war, with the exception of coal, everything in this list was dearer than it is now, and even up to 1885 prices were no higher than they are now. On the other hand, money wages were from 15 to 20 per cent. lower than they are now. Further, as a result of the war there has not been so much anticipated widespread unemployment. The large expenditure of the government in various branches of industry, and the liberal allowances to the wives of men who are fighting, have enabled the working classes to consume nearly on the same scale as before the war. The rise in the price of wheat is due to two causes—diminished supply and increased demand. The former is not entirely due to the war. There has been a failure of the Australian crop, and the high prices in India have led to a temporary embargo on the export of wheat. The Argentine crop, owing to bad weather, is three weeks late in going to the coast. By the closing of the Dardanelles, the war has cut off the Russian crop. The depredation of crops in Belgium and Northern France and the greatly reduced production in the Balkans are other causes. Increased consumption is due to the fact that men in the armies eat more than they did in civil life. Another cause of the rise is an increase of freights and speculation in the Chicago and New York markets. According to the premier, no army in the world has ever been so well fed as the British army operating in France, and in no respect has it been better supplied than with meat. The government in the earliest stages of the war purchased on a large scale the available stocks of sugar in the world, and now has sufficient to last many months, and the price of sugar in this country is approximately the same as in the United States. Our policy has prevented purchase by this country directly or indirectly of enemy sugar, and restricted the sale by Germany and Austria of their surplus stocks. The rise in the price of coal is partly due to increased freights, and partly to a diminished volume of labor available in the mines in consequence of enlistment. There is also a shortage of transport labor and seamen in consequence of enlistment and the removal of enemy aliens from our shipping service. The government is doing everything possible to facilitate transport. There is, of course, a shortage of shipping because of the disappearance from the ocean of the whole of the merchant service of Germany and Austria, and also because the Admiralty is employing for war transport a fifth of the British tonnage. To the disappointment of the Labor Party, Mr. Asquith declined to take any steps for fixing maximum prices. Speaking not as "an old-fashioned political economist" but as a practical man, he did not believe in such steps. In Germany they had the most disastrous consequences.

VOLUNTARY HOSPITALS AND WOUNDED SOLDIERS

The Council of the British Hospitals Association, 14 Victoria Street, Westminster, has been considering the varying conditions under which the voluntary hospitals are receiving wounded soldiers for treatment. Arrangements which the War Office has made as to payment vary considerably; for instance, few, if any, of the hospitals in London have asked for any payment from the government, while most of the provincial hospitals expect to be paid at rates which vary from 50 cents to $1 per patient per day. It is proposed to apply to the War Office to establish a uniform scale of payment with all the voluntary hospitals.

The Danger of Prescribing Over the Telephone

An unfortunate mistake illustrates the danger of prescribing poisonous drugs over the telephone. A man was in a nursing home preliminary to operation. His physician telephoned to a dispenser whom he employed to prepare a solution for hypodermic injection containing one seventy-fifth grain of physostigmin (eserin) sulphate. The dispenser mistook the direction and prepared a solution containing 0.75 grain (sixty times too much). Soon afterward he discovered his mistake and communicated with the physician, who telephoned to the nursing home too late to prevent the administration. He directed an antidote to be given and motored to the home only to find the patient dying. There is one consolation in the case: the patient was suffering from a malignant disease.

PARIS LETTER

Paris, Feb. 11, 1915.

The War

FROZEN FEET IN THE ARMY

The number of men sent from the front to the hospitals with the diagnosis of frozen feet is continually increasing. Lesions of all degrees, varying from simple blisters to total gangrene of the toes or even of the entire foot, are seen. This seems rather surprising since during this winter the temperature in our country has rarely fallen below zero C. According to Dr. Témoin of Bourges, who has made an interesting report on this subject to the Académie de médecine, many of the cases are not really cases of freezing, being produced less by the action of the cold than by the constriction of the feet in a shoe that is too tight, aided by the impairment of the circulation of the leg produced by the bands around the calves worn by many of our soldiers. Dampness aggravates the condition, producing a maceration of the tissues of the foot and making the shoes shrink still more. The low temperature favors vasoconstriction and the circulation becomes constantly slower. In support of this view, Témoin cites the example of the Russian and German troops who wear loose, waterproof boots and among whom, although they fight under the same conditions as our soldiers, frozen feet are not prevalent.

The result, to be sure, is the same whether the foot is frozen or the circulation stops, but practically the distinction is important. While one cannot prevent the effects of freezing, which is generally produced rapidly, it is not so with respect to constriction of the leg and the foot, the effects of which are produced slowly. None of the men hitherto sent to the hospitals after the diagnosis of frozen feet had been affected before the fourth day of sojourn in the water. The preventive remedy consists in the elimination of the band around the calf, loosening the lacings of the shoe and the employment of greasy material—oiled paper or greased socks—to cover the foot all over during the combatants' stay in trenches filled with water.

Témoin mentions a chief of service who, by merely telling his men in the trench to take off their shoes twice a day for a quarter of an hour, lowered the proportion of frozen feet. The academy agreed with Dr. Témoin's findings and voted unanimously to transmit his paper to the minister of war.

Dr. J. A. Sicard, agrégé professor at the Faculté de médecine de Paris, read a paper on the same subject before the Société médicale des hôpitaux de Paris. Having had the opportunity of observing a large number of cases of frozen feet, he remarked that the left foot was more frequently affected than the right. He attributed this circumstance to the fact that, whether seated or standing, right-handed persons, who are in the immense majority, automatically and unconsciously make more numerous and more extensive movements with the right foot than with the left. As predisposing causes besides the bands around the calves, Sicard mentions plantar hyperidrosis, chilblains of the toes and varicose condition of the legs.

As a prophylactic measure, Sicard recommends protecting the sock itself from contact with the cold by wrapping it with wool, etc. Greasing the foot coverings liberally also gives good results; likewise the interposition of strips of paper between the socks and the skin. As a palliative treatment, Sicard recommends the use of a mixture of 80 c.c. of alcohol 70°, 20 c.c. of ordinary glycerin and 1 c.c. of tincture of iodin. Gauze wet with this mixture is placed on the affected portions and covered with wadding lightly tied in place.

THE SOLDIERS' RATION OF FOOD IN WAR TIME

At one of the last sessions of the Académie des sciences, Dr. Armand Gautier, professor of chemistry at the Faculté de médecine de Paris, reported some interesting details in regard to the work of the committee instituted by the minister of war in 1907, for the study of soldiers' rations. As a standard for comparison, the committee took the normal ration of a laborer at hard manual work. After numerous investigations it was recognized that in a moderate climate, a quantity of food sufficient for the development of 4,133 calories was necessary per capita per day. In cold climates like that of Russia, 100 calories more should be added. The present food ration is equivalent only to 3,189 calories. During peace and even at the outbreak of the war, there was nothing alarming in the situation. Later the deficiency has been partly made up by adding to the ordinary ration of the troops 100 gm. of bread, 24 gm. of coffee, 30 gm. of sugar and 10 gm. of fat. This amounts to 3,900 calories. Dr. Gautier concludes that to obtain the number of calories corresponding to the ideal alimentary regimen, it would be necessary to supplement the ration further by 30 gm. of fat, 150 of bread and 50 centiliters of wine.

THE USE OF OATS FOR HUMAN FOOD

At the time of mobilization of the army, Captain Moreau submitted to the military authorities and to the central farmers' organization of France an important work on this subject which has become of special interest through later events. In comparison with barley and rye, oats have a superior nutritive value, as shown by the following figures:

	Oats	Rye	Barley
Protein	12.68	7.52 to 9.91	7.98 to 13.27
Fat	5.90	1.04 to 1.36	1.28 to 2.20

This shows the superiority of oats over the cereals ordinarily employed in France. Captain Moreau recommends using oats in the form of porridge. An officer has succeeded in preparing an oat biscuit which is easily transportable and much superior in flavor to the ordinary war bread. It is of considerable nutritive value. Experiments were made on groups of twenty soldiers undergoing particularly hard training. In each case there was considerable increase of weight and muscular force. It has therefore been decided to regard the oat crops in invested places as food material for human beings.

A MISSION OF THE JAPANESE RED CROSS TO PARIS

A mission of the Japanese Red Cross which left Yokohama December 16, last, has arrived in Paris. It is headed by Dr. H. Shiota, includes thirty-one persons and is accompanied by fourteen carloads of supplies, amounting to between 130 and 140 tons. Other missions have already been sent by the Japanese Red Cross into England and Russia, respectively.

Personal

During the session of February 2, the Académie de médecine elected as associate member Prince Albert of Monaco, who is already a member of the Académie des sciences. The Prince of Monaco has given much encouragement to medical and physiologic studies, apart from his personal work in oceanography in which physiologic applications have had a large share. At the preceding session, the academy unanimously elected Dr. Laurent of Brussels as foreign correspondent.

BERLIN LETTER

Berlin, Feb. 2, 1915.

The War

CONSERVATION OF THE FOOD SUPPLY

The newest regulation of our government concerning our nutritional condition requires a seizure of all grain and flour, and provides that communities shall arrange to distribute each week a limited ration of bread and flour to each citizen. Altogether, 2 kilograms of bread and flour per capita per week are permitted. The previous conditions with reference to the composition of white bread and rye bread remain undisturbed. That the population can easily abide by this restriction is evident, for no one has need of more than 2 kilograms of bread and flour and other flour products. Even if such a limitation may not be easy for those accustomed to luxury and fond of pastry, they will very soon accustom themselves to it. The matter of chief importance is that in this way, without doubt, the present stores of cereals will last until the next harvest, and in this way the starvation plan of England will be foiled. The leading English papers admit this to be their plan, at the same time taking the opportunity to pronounce high praises on the remarkable capacity of the German people for organization.

THE WOUNDED

Since our offensive has diminished in the west, especially in Flanders, and probably also on account of greater prudence in the attacks, the number of the wounded among our soldiers has grown less. Letters have been received in the last few weeks from six different places on the western front in which physicians speak of the lack of work. Naturally, not the slightest sympathy can exist for these unemployed physicians.

THE EXPOSITION ON THE CARE OF THE WOUNDED

In the exposition on the care of the wounded and sick which has had a very large attendance and for that reason has completely fulfilled its purpose, interesting lectures have been delivered by various physicians. Among others, Holländer of Berlin, professor of medical history, gave a lecture on the history of sanitation.

A HISTORY OF THE CARE OF THE WOUNDED IN WAR

Holländer said that in prehistoric times it is unlikely that there was a medical service. The lower class of medical servants practiced surgery, while for the treatment of diseases sent by the gods, a class of priests developed who enriched themselves by traffic in amulets in addition to profit derived from the sacrifices for the deities. In early antiquity, as can be seen from the Iliad and the Odyssey, the treatment of the wounded depended on the help of comrades. There was a great mortality from wounds. In the Old Testament surgical treatment on the field of battle is not indicated. The Greek soldiers, after a battle, hastened to the shrines of Aesculapius. Up to the decline of ancient civilization, the life of the individual was esteemed of little value, and hence arose an inferior conception of the medical profession. The Romans regarded it as a sordid business and left it to slaves and women. In the year 219 B. C., the first Greek surgeon came to Rome, and it is first among the Caesars that we find systematic military medical service. Still the soldiers gladly permitted themselves to be treated in the temple of the god of healing, Aesculapius, whose popularity, according to a polemic article of Origen, raised the question whether Christ or Aesculapius was the real god of healing. Hospitals are only occasionally noted in the history of antiquity. Thus it is said in the Bible that the leprous king, Uzzia, spent the rest of his life in a hospital. We know of a military hospital in the times of the Roman Caesars through excavations at Neuss which, like archeology in general, with its excavations of medical votive tablets and instruments, gives us better ideas of the medical military service than the statements of authors. The German people had those wounded in battle treated by their wives, who remained in their city of wagons behind the line of battle. Charms, especially mandrake root, played a great rôle. In the early middle ages, the women of the castle, skilled in the healing art, took up the care of the wounded in the battles of the Guelphs and the Hohenstaufen. The need of surgeons was first markedly felt when great armies like those of the Crusades were brought together so that epidemics, wounds and hunger left only 50,000 out of the 750,000 men of Gottfried von Bouillon to reach Jerusalem. This lack led the Crusaders to help themselves by founding orders of knights for the care of the wounded and sick. Indeed, Richard the Lion Hearted had a hospital ship accompany his troops to the coast of Palestine. At this time, also, the advance of medicine began in the University of Salerno, where distinguished surgeons were employed whose writings we know and whose methods are exhibited in pictures from their works; but it was the development of anatomy under Vesalius, whose fourth centenary was celebrated a short time ago, and the introduction of firearms that brought about an advance in military surgery. Three questions interested the surgeons in those times: the extraction of bullets, the poisoning of wounds from the gases from powder, and the checking of hemorrhage, which Ambroise Paré solved by tying the vessels. The establishment of an organized military medical service occurred first with the introduction of standing armies. Under King Frederick I of Prussia, the Charité Hospital was erected as the first garrison hospital and the medical college was established, and in 1795 the Pepiniere (nursery, professional school), which is now the Kaiser Wilhelm's Academy for the Education of Army Surgeons, was established.

WAR AND THE POPULATION

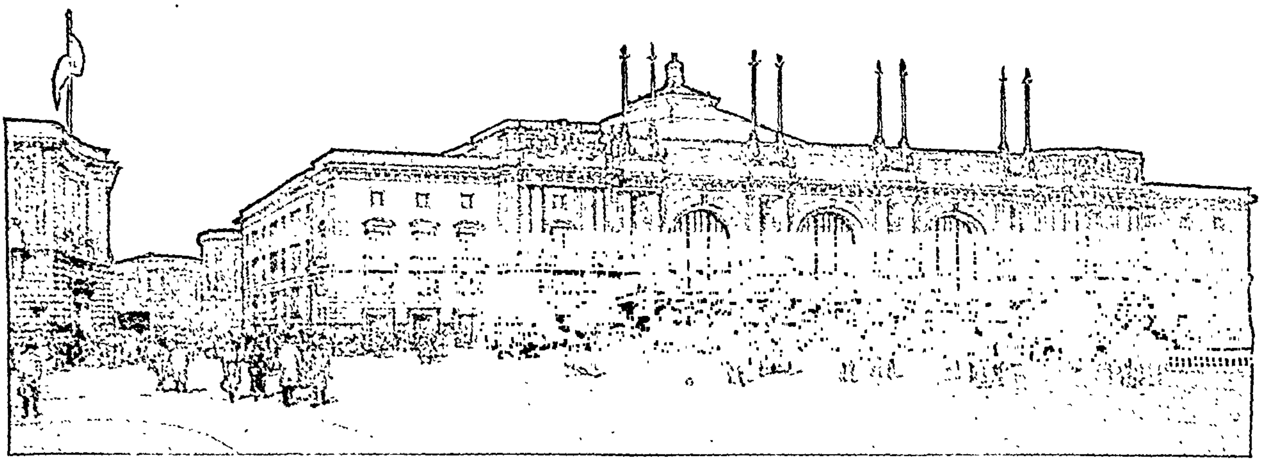
Professor Schwiening, surgical historian, reporter of the war office, and associate editor of the *Deutsche medizinische Wochenschrift*, recently spoke of the influence of the war on the movement of population. The influence which the direct losses, that is, the deaths as a result of wounds or sickness, have exercised in recent times on the number of the population is relatively small. Even in the war of 1870-1871 the losses amounted to only 1 per cent. of the entire population of Germany. As opposed to the direct losses, the indirect loss of population is essentially larger, since wars exercise an especial influence on those factors which are fundamental for the further development of a people, particularly on marriages and births on the one hand, and on the general mortality on the other. Every great war reduces at first the number of marriages to a considerable degree. The diminution in the years of war, however, is followed in later years by so much more marked increase of marriages that the loss is again compensated. Still greater is the diminution of births as a result of the war which cannot be fully explained by the diminution of marriages and the absence of many men, but is also to be referred to psychologic hindrances among those who remain behind. Here also there follows in the years after the war a considerable increase, so that the loss is quickly replaced. Finally, the entire mortality, in many wars, is markedly increased by the fact that on account of them, great epidemics occur in the civil population and demand many victims. In many wars of previous centuries, these losses through epidemics have actually been much greater than the essential losses from the war, and have led to the complete depopulation of many cities. A peculiar phenomenon is the increase of emigration which almost always makes itself evident after great wars, and may have its basis in the political and economic and personal changes which every war involves. What influence the present war will exercise on the population and on the movement of population of the German Empire cannot yet be predicted. It may be assumed with certainty that the unfortunately marked reduction in the birth rate, which began in Germany about ten years ago and could not be arrested by any of the numerous measures directed against it, will be checked so that after the war another marked increase of births will set in. If that is the case, the war, in spite of the great sacrifice of human life, will be a blessing for the development of our entire population.

Association News

THE SAN FRANCISCO SESSION

Exposition Memorial Auditorium Will Accommodate All the Meetings with the Exception of the General Meeting

The annual session to be held in San Francisco next June will be unique in that all the meetings—the House of Delegates, the entire Scientific Assembly (except its first meeting, the General Meeting), the Registration Bureau, the Scientific Exhibit and the Commercial Exhibit—will be held under one roof. The Exposition Memorial Auditorium has been placed at the disposal of the Association for the week of the session, and provides ample accommodations for all the section meetings. The Memorial Auditorium occupies an entire block and forms part of the civic center. It, the city hall and other municipal public buildings are grouped and form an impressive area. The Auditorium itself is bounded by Grove, Larkin, Hayes and Polk streets. The group of buildings comprising the civic center is at a central point and is easily accessible from all sections of the city. Market Street, a wide thoroughfare leading to the ferry and steamship terminals on the water front, is directly adjacent. From the western boundary of this civic center, the Van Ness Avenue Municipal Street Railway leads directly to the exposition. The trip from the Auditorium to the exposition ground will take less than fifteen minutes.



The Exposition Memorial Auditorium. All the meetings—the House of Delegates, the entire Scientific Assembly (except the General Meeting), the Registration Bureau, the Scientific Exhibit and the Commercial Exhibit—will be held in this building.

The Memorial Auditorium, the building and equipment of which cost in round numbers $1,250,000, will be given to the city of San Francisco at the close of the exposition as a permanent memorial. This building has eleven halls, each with a seating capacity of from 400 to 10,000 people. In addition, there are nineteen rooms which will accommodate from thirty to 125 people. Rolling partitions on the third and fourth floors permit dividing some of the larger halls so that it is possible to provide fourteen halls, each with a minimum capacity of 250. By the use of these rolling partitions the Auditorium can at the same time provide for twenty-one meetings with an attendance of from 250 to 10,000, and will have still in reserve nineteen committee rooms which can accommodate from thirty to 125 people. The building is four stories high, with a large auditorium extending throughout its entire height in the central portion. Around this auditorium are wide corridors on all sides except at the rear where the entrance is directly from the street. Around three sides of the Auditorium there is a large balcony. Ample exits from the balcony to the corridors are provided at the different floor levels, and wide stairways extend from these corridors to the main floor. In addition, elevators connect the different floors of the building. A skylight at the top of the pyramidal roof furnishes light to the interior, and in addition, electric lights on the ceiling and walls give whatever necessary artificial light may be desired.

The main hall of this auditorium will be devoted to the Registration Bureau, together with the postoffice and information desks, and the commercial exhibits.

The wide corridor or foyer along the front of the building on the first floor will house a popular public health exhibit, part of the general plan for commemorating the service medical science has rendered. The corridor on the second floor, immediately above, will be used for the more technical portion of the scientific exhibit. On either side of this auditorium, and separated from it by wide corridors, are wide convention halls. These halls on the different floors of the Auditorium will be assigned to the scientific sections so that, as has already been stated, all the section meetings during this annual session will occur under one roof. The nearest approach to this convenient arrangement which the Association has been able to provide was in 1913, when the halls of the University of Minnesota permitted holding all the sections on the campus of the university. Much satisfaction was expressed by the Fellows who attended the Minneapolis meeting because all the Sections were accommodated in comfortable and commodious halls situated one near to the other. In San Francisco, this plan is followed even more fully.

Attention is again called to the arrangements which have been completed, whereby comfortable and reasonably priced quarters may be assured those who go to San Francisco. The subcommittee on hotels of the Local Committee on Arrangements states that the Hotel Bureau will be able to locate those Fellows, who request it, in hotels adjacent to the Civic Center in which the Exposition Memorial Building is situated. This Bureau, as previously announced (The Journal, February 20, p. 680, and February 27, p. 758), is operated in connection with the Panama-Pacific International Exposition and the San Francisco Hotel Association. A deposit of $5 will guarantee rooms to all those who make their reservations in advance. There is every promise of great convenience and pleasant arrangements for the annual session at San Francisco.

The Truth.—Perhaps there is one function of the scholar which should be cherished above all others. It is to discover and tell the truth. In spite of our many and increasing agencies for disseminating information, it seems just as difficult as ever to get at the truth about any given subject. It is not always palatable and has occasioned great disturbances. Many scholars have been compelled to fight and suffer for what they firmly believed to be the truth. Even to-day the scholar's truth is not always acceptable.—Theobald Smith, *Boston Med. and Surg. Jour.*

Marriages

Clarence William Anderson, M.D., Duluth, Minn., to Miss Lovena Rasmussen of Mabel, Minn., at Minneapolis, February 10.

Grover C. Bullington, M.D., Nokomis, Ill., to Miss Margaret Christian of St. Louis, Mo., at Springfield, Ill., February 17.

Joseph E. G. Waddington, M.D., to Miss Antoinette Marie Margraf, both of Detroit, at Windsor, Ont., February 15.

Louis Robert Melnikoff, M.D., Chicago, to Miss Mae Arkin of Hammond, Ind., February 23.

Creswell T. Pigot, M.D., Roundup, Mont., to Miss Alice Lowry of Butte, Mont., February 10.

James H. Fonger, M.D., Gary, S. Dak., to Miss Lucille Eakins, recently.

Deaths

Homer Gibney, M.D. Atlanta (Ga.) Medical College, 1893; a member of the Medical Society of the State of New York and New York Academy of Medicine; professor of orthopedic surgery in, and secretary of the New York Clinical School of Medicine; assistant surgeon to the Hospital for Ruptured and Crippled, New York; consulting orthopedic surgeon to the Italian Hospital, Somerville, N. J., and to the Rockaway and Tarrytown hospitals; orthopedic surgeon and president of the medical board of the West Side German Dispensary, New York City; one of the best-known orthopedic surgeons of New York; died at his home in that city, February 16, aged 55.

Andrew Sabine, M.D. Jefferson Medical College, 1856; the oldest practitioner of Weston, Kan., surgeon of U. S. Volunteers during the Civil War; mayor of Garden City, Kan.; at one time a member of the State Board of Health; for several years a member of the board of education and for more than twenty years local surgeon for the Sante Fe system; died at his home in Garden City, February 14, aged 84.

James Calhoun Brobst, M.D. Bellevue Hospital Medical College, 1867; assistant surgeon of the Forty-Sixth Pennsylvania Volunteer Infantry during the Civil War; superintendent of the Lititz Springs (Pa.) Sanitarium; chief burgess of Lititz and president or director of many of the local commercial activities; also a druggist; died at his home in Lititz, Pa., February 15, from senile debility, aged 70.

Hugh Young Brady, M.D. Western Pennsylvania Medical College, Pittsburgh, 1889 (license, Fayette County, Pa., years of practice, 1881); a veteran of the Civil War; for forty-five years a practitioner of Ohiopyle, Pa., and a member of the school board and common council; died at his home in that place, February 14, from cerebral hemorrhage, aged 74.

Omar Alpha Flint, M.D. University of Vermont, Burlington, 1885; formerly superintendent of schools of Billerica, Mass.; a member of the Massachusetts Medical Society; at one time superintendent of the Westboro Reformatory and a member of the staff of the Tewkesbury State Hospital; died at his home in Dracut, Mass., February 16, aged 71.

Francis Hustace, M.D. College of Physicians and Surgeons in the City of New York, 1874; a member of the Medical Society of the State of New York, while suffering from an attack of vertigo, February 17, fell from a window in his apartment on the twelfth floor of the Heimscott Building, New York City, and was instantly killed, aged 64.

Edward G. Husler, M.D. Jefferson Medical College, 1881; of Carnegie, Pa.; vice-president of the Carnegie Trust Co., Pittsburgh; a director of the First National Bank of Carnegie and one of the largest real estate owners in the Chartiers Valley; died in the West End Hospital, Pittsburgh, February 14, from heart disease, aged 61.

John Saxton Deemy, M.D. Medico-Chirurgical College of Philadelphia, 1890; a Fellow of the American Medical Association; one of the organizers of the Logan County (Ohio) Medical Society and local surgeon of the Big Four system at Bellefontaine, Ohio, died at his home in that place, February 13, from pneumonia, aged 48.

Judson Giles Kilbourn, M.D. New York University, New York City, 1884; a Fellow of the American Medical Association and a well-known surgeon of central New York; consulting surgeon to St. Elizabeth's Hospital, Utica, and surgeon to St. Luke's Hospital, Utica; died at his home in that city, February 16, aged 55.

James Joseph Scannell, M.D. Tufts College, Boston, 1905; of Brighton, Boston; director of the bacteriologic laboratory of the Boston Board of Health; formerly visiting physician to St. Mary's Infant Asylum; died in Carney Hospital, Boston, February 19, from pneumonia following an operation for gastric ulcer, aged 39.

Louis J. P. Des Rosiers, M.D. University of Victoria College, Coburg, Ont., 1872; medical health officer of Montreal in 1884; a member of the city council of Montreal for several years; died at his home in that city, February 12, from internal injuries sustained in a fall three weeks before, aged 78.

Albert Samuel Cooke, M.D. College of Physicians and Surgeons in the City of New York, 1901; of Brooklyn, who had had seven years of hospital work in Germany and who went to Valemova, Servia, in November, 1914, in the service of the Servian Red Cross; died recently in Servia, aged 36.

James K. Donoghue, M.D. Georgetown University, Washington, D. C., 1909; for two years a member of the staff of the Central Islip State Hospital, Long Island, N. Y., but for the last year a practitioner of Rochester, N. Y., died at his home in that city, February 14, from pneumonia, aged 28.

Francis Elias Whitlock, M.D. Jefferson Medical College, 1914; a member of the house staff of St. Alexis Hospital, Cleveland; for several years superintendent of the water works at Fostoria, Ohio; died at the home of his parents in Urbana, Ohio, February 8, from tuberculosis, aged 32.

James Ashley Bangs, M.D. University of Vermont, Burlington, 1884; of Iron Mountain, Mich., and physician for the Pewabic Company; for four years a resident of Denver; died at his home in that city, January 28, from tuberculosis, aged 59.

Russell Henry Wheeler, M.D. Northwestern University Medical School, Chicago, 1898; for many years a practitioner of Rapid City, S. Dak.; died at a hospital in Leavenworth, Kan., February 11, from cerebral hemorrhage, aged 43.

Adam B. Simmons, M.D. Eclectic Medical Institute, Cincinnati, 1867; a veteran of the Civil War and later a practitioner of Morrison, Ill., and California; died at his home in Chino, Cal., February 7, from influenza, aged 78.

J. Wallace Daniel, M.D. Atlanta (Ga.) Medical College, 1894; formerly a Fellow of the American Medical Association; a member of the Medical Association of Georgia; died at his home in Claxton, Ga., Dec. 16, 1914, aged 42.

Edward Harper, M.D. Pulte Medical College, Cincinnati, 1887; of New Orleans; secretary of the Louisiana Homeopathic Board of Medical Examiners; died in the Touro Infirmary, New Orleans, February 4, aged 51.

Charles Joseph Stark, Jr., M.D. Long Island College Hospital, Brooklyn, N. Y., 1912; of Woodhaven, L. I., N. Y.; also a druggist; died suddenly in Brooklyn, N. Y., February 11, from heart disease, aged 33.

S. B. Lee (license, Georgia Eclectic Board, 1901), professor of hydro- and mechanical therapeutics in the Hospital Medical College, Eclectic, Atlanta, Ga.; died at his home in Red Oak, Ga., February 7, aged 56.

James Ford Simpson, M.D. University of Nashville, Tenn., 1904; of Athens, La.; died in the Schumpert Memorial Hospital, Shreveport, La., February 11, a day after an operation for appendicitis, aged 38.

Lawrence Mitchell Cremin, M.D. New York University, New York City, 1881; of New York City; a member of the Connecticut State Medical Society; died in Bridgeport, Mass., Dec. 16, 1914, aged 54.

Samuel S. Eidler, M.D. Rush Medical College, 1865; of Wichita, Kan.; for many years a practitioner of Streator and Ottawa, Ill.; died in San Antonio, Tex., January 24, from cerebral hemorrhage, aged 79.

Edward Francis Ford, M.D. Maryland Medical College, Baltimore, 1891; a physician and druggist of Chester, Pa.; died in the Chester Hospital, February 4, from cerebral hemorrhage, aged 39.

John D. Skilling, M.D. Western Reserve University, Cleveland, Ohio, 1865; surgeon of U. S. Volunteers throughout the Civil War; died at his home in Lonaconing, Md., February 8, aged 87.

A. S. Kirk (license, Mississippi), a practitioner of Winston County, Miss., for more than fifty years; died at his home in Louisville, Miss., February 9, aged 76.

John Henry Boothe, M.D. Medico-Chirurgical College of Philadelphia, 1899; a member of the Medical Society of the State of Pennsylvania; died at his home in Philadelphia, January 3, aged 46.

Francis A. Tappan, M.D. Kansas City (Mo.) Medical College, 1871; at one time assistant city physician of Kansas City; died at his home in Kansas City, Mo., February 1, aged 71.

Amos Hagar Peirce, M.D. Boston University, 1882; a Fellow of the American Medical Association; died at his home in West Newbury, February 9, from heart disease, aged 54.

Oscar Fred Thornton, M.D. St. Louis College of Physicians and Surgeons, 1909; of Vaughan, Ark.; died at the home of his father in Lick Creek, Ill., January 29, aged 29.

Albert Elbridge Singer, M.D. Miami Medical College, Cincinnati, 1880; formerly of Dayton, Ohio; died at his home in Lewisburg, Ohio, February 7, from nephritis, aged 66.

Charles Scott Meeks, M.D. Memphis Hospital Medical College, 1909; died at his home near Columbus, Miss., January 1, from an overdose of chloroform, aged 30.

Milton J. Bolan (license, Indiana, 1897), for nearly fifty years a practitioner of Indiana; died at his home in Peru, Ind., February 4, from senile debility, aged 85.

Charles L. Powers, M.D. Hahnemann Medical College, Chicago, 1878; a pioneer practitioner of Coffeyville, Kan.; died at his home, February 3, aged 70.

Sampson Eagon, M.D. University of Virginia, Charlottesville, 1857; died at his home in Dallas, Tex., January 30, from cerebral hemorrhage, aged 79.

Michael Jacob Beard, M.D. Miami Medical College, Cincinnati, 1891; died at his home in Lucasville, Ohio, February 5, from disease of the lungs, aged 46.

Daniel W. Finnimore, M.D. Fort Wayne (Ind.) College of Medicine, 1881; died at his home in Potsdam, N. Y., February 7, from nephritis, aged 60.

Paul Koeper, M.D. Rush Medical College, 1899; a Fellow of the American Medical Association; died at his home in Baxter, Ia., Dec. 11, 1914, aged 43.

Victor Weinstein, M.D. Bennett Medical College, Chicago, 1910; died at his home in Chicago, Dec. 21, 1914, from angina pectoris, aged about 60.

Jesse B. Pardew (license, Arkansas, 1903), for twenty years a practitioner of Argenta, Ark.; died at his home in that city, February 5, aged 62.

Charles Franklin Addis, M.D. Kentucky University, Louisville, 1906; died at his home in Rineyville, Ky., January 28, from tuberculosis, aged 36.

Truman Coates, M.D. University of Wooster, Cleveland, 1888; of Oxford, Pa.; died in the Polyclinic Hospital, Philadelphia, February 1, aged 62.

William Hasenbalg, M.D. Cooper Medical College, San Francisco, 1882; of Castro Valley, Alameda County, Cal.; died Nov. 27, 1914, aged 62.

Joseph Walter Sim, M.D. University of Maryland, Baltimore, 1892; health officer of Glenwood, Md.; died at his home, January 8, aged 57.

Lewis Stiles Rogers, M.D. Chicago Medical College, 1853; of San Pedro, Cal.; died at his old home in Bakersfield, Cal., Dec. 6, 1914, aged 79.

James H. Glass, M.D. College of Physicians and Surgeons, Baltimore, 1884; died at his home in Paso Robles, Cal., January 8, aged 57.

Henry C. Shipley, M.D. University of Maryland, Baltimore, 1865; of Washington, D. C.; died in Sykesville, Md., February 11.

James Ford Hodge, M.D. Tulane University, New Orleans, 1886; died at his home near Walnut Lane, La., January 30.

John William Chambers, M.D. University of Michigan, Ann Arbor, 1874; died at his home in Oketo, Kan., February 4, aged 64.

Nelson Lucius Dow, M.D. Hahnemann Medical College, Chicago, 1887; died at his home in Glover, Vt., Dec. 1, 1914, aged 53.

Anal A. Carruth, M.D. New Orleans School of Medicine, 1858; died at his home in Wilson, La., February 5, aged 77.

S. J. Oliver, M.D. Medical College of Georgia, Augusta, 1887; died recently at his home in Waynesboro, Ga.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

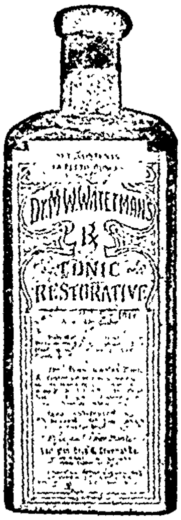
SOME MORE FRAUDULENT EPILEPSY CURES

The Waterman-Perkins-Kline Group of Nostrums

WATERMAN'S TONIC RESTORATIVE

The Waterman Institute of New York is one of the names under which Alexander W. Chappell has advertised "cures" for epilepsy and for the morphin habit. Chappell, who is said to be in the real estate business at Red Bank, N. J., also has operated under the name of the Lexington Drug and Chemical Company, which put out the Waterman "epilepsy cure." He is said to have been the principal owner of the "Aldine Laboratories" and the "Windsor Laboratories," and to have been formerly connected with a concern known as the "Berlin Remedy Company."

The advertising methods of the Waterman concern have been as vicious as its products. Whether advertising its morphin-loaded "dope" for unfortunate drug addicts or its bromid-loaded nostrum for epileptics, it has deluded and defrauded the public by means of advertisements prepared in the form of news items. For years certain newspapers published these advertisements in such form as to lead the unwary to believe they were telegraphic dispatches sent out to the newspapers. More recently, thanks to a government ruling on the subject, most of the newspapers carrying the Waterman advertisements have placed the tell-tale letters "*Adv.*" at the end of these items.



Apparently, it is not from New York alone that Chappell carries on his business. Newspaper advertisements identical in general appearance and wording with those of the Waterman Institute "news items" have been published telling of the marvelous results alleged to have been achieved in the treatment of epilepsy by one Dr. H. W. Perkins of Red Bank, N. J. Perkins apparently acts for Chappell both under his own name and also under the name of the Dr. R. H. Kline Company, a nostrum concern having the same address as the Lexington Drug and Chemical Company and, like it, said to be owned or controlled by A. W. Chappell.

Those who sent their money to the Waterman Institute for the "epilepsy cure" received a bottle of "Dr. M. W. Waterman's Tonic Restorative"; those who prefer to get the nostrum through Perkins of Red Bank receive "Prescription 909—Dr. Perkins' Favorite Prescription," while those who "fall for" the Dr. Kline fraud, get a bottle of "Dr. Kline's Nerve Remedy." The price is the same in any case—two dollars a bottle.

About a year ago there seemed to be an insurrection in the Waterman Institute camp. For years the letters sent out by the Waterman Institute, whether in connection with its villainous "morphin cure" or with the "epilepsy cure" have been signed "Lewis Riley, M.D." But in January, 1914, a letter from the M. W. Waterman Institute came signed William J. Brady, M.D., in which Brady begged to inform you that he had "superseded Dr. T. Lewis Riley" and would take personal charge of your case in the future. Moreover, he hoped to "give your case greater personal attention" than his predecessor, Dr. Riley, had done. Shortly after the Brady letter there came one from 112 East Nineteenth Street, New York City, signed Lewis Riley, M.D. This read, in part:

"Remember I have always been your physician, I alone treated all cases of epilepsy and nervous diseases, for the Waterman Institute, and no one has my record or tonic formulas. Should you take medicines apparently the same, it would not have the lasting effect."

Riley further urged his correspondents to address all communications and *make all remittances payable* to the "Pure Drug and Chemical Company" of that city. In another letter Riley wrote, among other things:

"I have been informed that a Dr. Brady is writing to my patients on a letter headed 'Waterman Institute' stating he has new and original methods, and sends them a sample of some kind of medicine. Dr. Brady has none of my formulas and any one who has taken any of my records from the Lexington Drug and Chemical Company has done so without my consent. Kindly do not consider me responsible for any deleterious effects that may arise from the use of any remedy that I have not prescribed. He also infers that I have quit treating epilepsy and nervous diseases and turned my practice over to him. This is not the case and at no time has he ever been employed in my offices as a consulting physician."

Our records fail to show that there is any licensed physician in New York named Lewis Riley. There is, however, a Thomas Lewis Riley, who was graduated in 1897 by the Bellevue Hospital Medical College, and was licensed in New York in 1900, and in New Jersey in 1914. William J. Brady, Riley's successor, is, according to our records, a graduate of New York University Medical College, 1892, and was licensed to practice in New York in 1894.

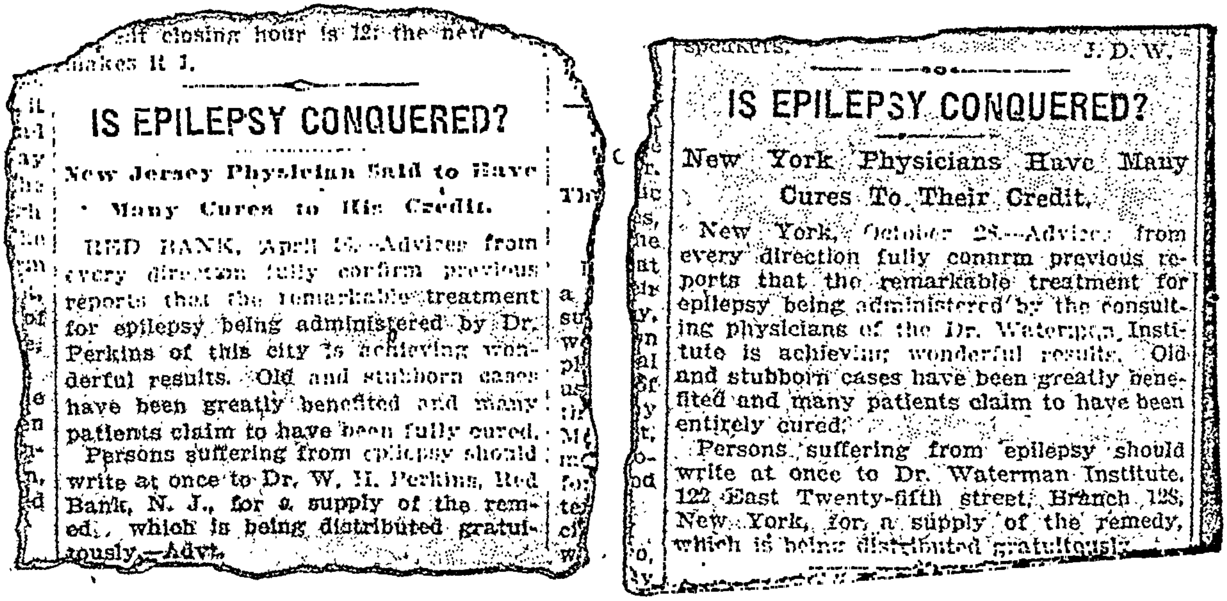
The "Dr. M. W. Waterman's Tonic Restorative" was analyzed in the Chemical Laboratory of the American Medical Association. The chemists' report follows:

CHEMISTS' REPORT[1]

One original bottle of "Dr. Waterman's Restorative," manufactured by Lexington Drug and Chemical Co., New York, N. Y., was submitted to the Chemical Laboratory for examination.

The bottle contained about 350 c.c. (11½ fluidounces) of a brown liquid, having extractive matter present and with an odor of cinnamon. The specific gravity at 15.6 C. was 1.1788. Qualitative tests demonstrated the presence of cinchona alkaloids, ammonium, potassium, sodium, chlorid and bromid. Quantitative determinations yielded the following:

Alkaloids (by weight)	0.04 per cent.
Ammonia (NH_3) (by weight)	1.30 per cent.
Potassium (K^+) (by weight)	2.70 per cent.
Sodium (Na^+) (by weight)	1.51 per cent.
Bromid (Br^-) (by weight)	16.36 per cent.
Chlorid (Cl^-) (by weight)	0.34 per cent.



...closing hour is 12; the new makes R. J.

IS EPILEPSY CONQUERED?

New Jersey Physician Said to Have Many Cures to His Credit.

RED BANK, April 15.—Advices from every direction fully confirm previous reports that the remarkable treatment for epilepsy being administered by Dr. Perkins of this city is achieving wonderful results. Old and stubborn cases have been greatly benefited and many patients claim to have been fully cured.

Persons suffering from epilepsy should write at once to Dr. W. H. Perkins, Red Bank, N. J., for a supply of the remedy, which is being distributed gratuitously.—Advt.

speakers. J. D. W.

IS EPILEPSY CONQUERED?

New York Physicians Have Many Cures To Their Credit.

New York, October 28.—Advices from every direction fully confirm previous reports that the remarkable treatment for epilepsy being administered by the consulting physicians of the Dr. Waterman Institute is achieving wonderful results. Old and stubborn cases have been greatly benefited and many patients claim to have been entirely cured.

Persons suffering from epilepsy should write at once to Dr. Waterman Institute, 122 East Twenty-fifth street, Branch 128, New York, for a supply of the remedy, which is being distributed gratuitously.

Dr. W. H. Perkins, of Red Bank, N. J., and the Dr. Waterman Institute of New York City are two names under which one A. W. Chappell seems to do, or to have done, business. The Kline Laboratories, New York City, is still another name used by the same man. All of the concerns sell "cures" for epilepsy. Perkins and the Waterman Institute have reached the public by means of advertisements prepared as news items. Two such advertisements are here reproduced. The letters "*Advt.*" following the items are a comparatively recent addition.

Essentially, each 100 c.c. of the solution contains approximately 8.8 gm. ammonium bromid, 9.7 gm. potassium bromid and 8.1 gm. sodium bromid. Calculating from the bromid determination, each meal-time dose, one teaspoonful (1 fluidram), contains the equivalent of 17.6 grains potassium bromid, and each daily dose (5 teaspoonfuls) corresponds to 88.0 grains of potassium bromid.

The directions on every bottle of "Dr. M. W. Waterman's Tonic Restorative" give the following dosage for adults:

"One teaspoonful after each meal and two at bedtime, in a wineglassful or more of water."

As the chemists' report shows, these five teaspoonfuls of the Waterman nostrum contain the equivalent of 88 grains of potassium bromid. As in all "epilepsy cures," the natural tendency of the person taking the Waterman nostrum is to increase the dose. This explains the testimonials that are written by those who use such preparations. By increasing the dose of the bromids to a point far beyond that of safety the epileptic attacks are suppressed at the expense of permanent injury to, and brutalization of, the patient. To the non-medical mind, suppression of the attacks passes for a "cure." That the Waterman concern, in common with other exploiters of "epilepsy cures," cares little for the health or safety of the person using its nostrum, is indicated by the statement appearing on the label under "Doses and Directions":

"Note.—If these doses are not sufficient to stop the 'Fits' and 'Spasms' increase the dose . . ."

In other words, the Waterman Institute would leave the dosage of the nostrum entirely to the judgment of the user. And the public is not told that the stuff contains bromids, while it is assured that the preparation is "safe." The fraudulence of "Waterman's Tonic Restorative" is evident.

Dr. Kline's Nerve Remedy

Dr. Kline's Epilepsy Cure used to be advertised under the name of Dr. R. H. Kline of Philadelphia. Now, it is sold by the Dr. R. H. Kline Company, 45-47 East Twentieth Street, New York—the same address as the Lexington Drug and Chemical Company, manufacturers of the Waterman "epilepsy cure." On both the letterhead of the Dr. R. H. Kline Company and the carton in which the preparation comes, it is stated that the concern has its "laboratories" at Red Bank, N. J. Red Bank, it will be remembered, is the home of A. W. Chappell and his employé, H. W. Perkins,

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[1] This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

M.D., of "Dr. Perkins' Favorite Prescription." It is not surprising, then, that those who write to the Dr. R. H. Kline concern should receive a letter signed "H. W. Perkins, M.D."

Originally there seems to have been a Dr. R. H. Kline who for years quacked it in Philadelphia. In the advertising leaflets sent out by the Dr. R. H. Kline Company in 1914, no mention is made of the fact that Kline is dead, or, in fact, that he is not still in charge of the concern. In common with "Dr. M. W. Waterman's Tonic Restorative" and "Dr. Perkins' Favorite Prescription," "Dr. Kline's Nerve Remedy" also comes at two dollars a bottle.

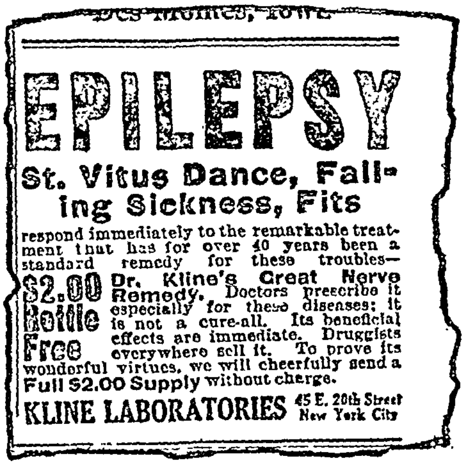
A bottle of Dr. Kline's Nerve Remedy was obtained and submitted to the Association's Laboratory for examination. The chemists' report follows:

CHEMISTS' REPORT[1]

One original bottle of "Dr. Kline's Nerve Remedy," manufactured by Dr. R. H. Kline Co., New York, N. Y., was submitted to the Chemical Laboratory for examination. The bottle contained about 350 c.c. (11½ fluidounces) of a brown liquid, having extractive matter present, and with an odor of cinnamon. The specific gravity of the liquid at 15.6 C. was 1.1740. Qualitative tests demonstrated the presence of cinchona alkaloids, ammonium, potassium, sodium, bromid and chlorid. Quantitative determinations yielded the following:

Alkaloids (by weight)	0.04 per cent.
Ammonia (NH_3) (by weight)	1.29 per cent.
Potassium (K^+) (by weight)	2.57 per cent.
Sodium (Na^+) (by weight)	1.50 per cent.
Bromid (Br^-) (by weight)	16.10 per cent.
Chlorid (Cl^-) (by weight)	0.23 per cent.

Essentially, each 100 c.c. of the solution contains approximately 8.7 gm. ammonium bromid, 9.2 gm. potassium bromid and 8.0 gm. sodium bromid. Calculating from the bromid determinations each meal-time dose, one teaspoonful (1 fluidram), contains the equivalent of 17.2 grains potassium bromid, and each daily dose (5 teaspoonfuls) corresponds to 87.0 grains potassium bromid.


EPILEPSY

St. Vitus Dance, Falling Sickness, Fits

respond immediately to the remarkable treatment that has for over 40 years been a standard remedy for these troubles—Dr. Kline's Great Nerve Remedy. Doctors prescribe it especially for these diseases; it is not a cure-all. Its beneficial effects are immediate. Druggists everywhere sell it. To prove its wonderful virtues, we will cheerfully send a Full $2.00 Supply without charge.

$2.00 Bottle Free

KLINE LABORATORIES 45 E. 20th Street New York City

A typical advertisement of the Kline Laboratories—a concern operated by the owner of the Waterman and Perkins frauds.

The report on Dr. Kline's Nerve Remedy shows that it is identical with the product put out under the name of Dr. Waterman's Tonic Restorative. The fractional differences that appear are not more than would be found in comparing any two analyses of the same product.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE HARRISON NARCOTIC LAW

To the Editor:—1. Is a physician dispensing his own remedies required to keep a record of cough mixtures, etc., containing only the minimum amount of opium, that is, 2 grains?

2. In dispensing to a patient when on a visit to him, if we leave 4 or 6 morphin ¼-grain tablets to be taken every one to four hours as directed, are we required to make and keep a record?

GEORGE D. CARNES, M.D., South Haven, Mich.

ANSWER.—1. No. The act does not apply to preparations which do not contain more than 2 grains of opium or more than one-fourth grain of morphin or more than one-eighth grain of heroin or more than 1 grain of codein, etc. Physicians dispensing remedies containing the minimum amount permitted of these drugs are not required to keep a record of them.

2. No. Drugs dispensed or distributed to patients by physicians in personal attendance on a patient need not be recorded (Article 10, Regulations).

To the Editor:—I ask you to notice the *Bulletin* of the Lycoming County Medical Society touching the new morphin-cocain act, which has been sent to you. What constitutional right has Congress to compel me to register before I may deal in and dispense these drugs? I am not engaged in interstate business. My business is confined to Pennsylvania. Pennsylvania has compelled me to comply with certain conditions before it gives me a permit to practice. It then compels me to register that permit and pay for it. It has the common decency, however, not to rob me of a fee each year for registering. Will you not look into this matter?

CHARLES J. CUMMINGS, M.D., Williamsport, Pa.

ANSWER.—Congress possesses the constitutional right to pass legislation regulating interstate commerce. The object sought in this case is the same as that sought in the passage of the law placing a prohibitive tax on the use of white phosphorus in the manufacture of matches, namely, the exercise of its legislative power for the public good. Both laws are in the guise of tax measures but are really for restrictive and not for revenue purposes. The tax of one dollar is not for revenue, but merely to make the law a revenue measure.

To the Editor:—I do not wish my name to appear in connection with this inquiry, but I believe answers in THE JOURNAL to the questions below will greatly help medical men:

Physicians must register and pay tax.

But: 1. Must a separate record and file of prescriptions be kept of those containing opiates and cocain? Will not the entry on our case records answer?

2. Must every such prescription have on it the name of the physician and his registered number and date of prescribing? If so, can all of these or any part be printed on the prescription blank? Will initials answer?

3. If a physician gives a hypodermic of morphin or sprays nose or throat with cocain must he make a record of it, and how complete must it be? Sprays and drops into eyes, etc., cannot be measured easily.

4. Must any record be made by a physician who orders a nurse to give a hypodermic of morphin?

5. Often a physician will direct a patient to refill for example a cough medicine if it distinctly aids him. Can this practice be continued?

N. S. D.

ANSWER.—1. Physicians are not required to keep a record of prescriptions. This cannot be emphasized too strongly. Physicians are only required to keep a record of narcotics dispensed. The prescription record is kept by the druggist.

2. Prescriptions for the drugs specified in the law must bear the signature in full of the physician, his registry number, the location of his office and the name and address of the person for whom such prescriptions are intended. There is nothing in the law or the regulations forbidding the registry number and the location of the office being printed on the blank. The physician's name must be "signed in full." Initials are not sufficient.

3. No. No record is required of drugs personally administered.

4. There is no distinct provision in the regulations on this point. A supplementary circular issued February 13 reads, "When visiting a patient in a hospital, a physician would

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[1] This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

be considered as making a personal visit. . . . A visiting physician attending a patient in a hospital should be required by the hospital authorities when prescribing any drug falling under the scope of this law to place his initials on the chart or medicine sheet immediately after the drug prescribed." This requirement does not apply to state, county or municipal hospitals.

5. No. Prescriptions containing the specified drugs cannot be refilled. Regulations, Section 12 says, "If the physician desires the patient to continue taking a preparation, a new prescription must be written each time."

DIRECTIONS FOR MAKING DECINORMAL SOLUTION

To the Editor:—I should like to know how to make up a decinormal sodium hydroxid test solution.

E. J. G. Shults, M.D., Vienna, S. Dak.

Answer.—Decinormal alkaline solutions are usually made by diluting one part of the normal solution up to ten parts. Thus 100 c.c. of normal sodium hydroxid are put in a liter flask and diluted up to the mark with distilled water. The new solution is tested against a decinormal acid, which it should neutralize exactly, volume for volume. Directions for making normal sodium hydroxid solution are given in the United States Pharmacopeia.

THE USE OF THE LUETIN TEST

To the Editor:—The following phenomenon was noted by me recently, and as I have read or heard of nothing of the sort, I should like to report it.

A case of undoubted syphilis in the secondary stage with marked glandular and skin manifestations received prompt treatment with neosalvarsan, five maximal doses, and mercury, two courses of inunctions a year apart. After five months' rest from treatment, the blood Wassermann and provocative blood Wassermann tests were negative. After another rest period of several weeks, a luetin test was made and was doubtful, a tiny hard swelling being present from the first, not tender, with no areola, and perhaps 2 or 3 mm. in diameter. As the test was not absolutely negative, a short course of inunctions was decided on and begun in about ten days. On the fourth day, after two inunctions of mercury in the form of dilute ointment, of 2 gm. each, a very pronounced and typical luetin reaction was noted with considerable swelling, redness, tenderness and induration. This persisted for nearly ten days, slowly faded out and finally desquamated. The point of interest to me is this: Could this reaction be called a provocative luetin reaction and, if so, is it of any value? Has it any diagnostic or prognostic value? Perhaps it is simply a delayed reaction.

Charles E. Farr, M.D., New York.

Answer.—The luetin reaction is comparatively seldom positive in the secondary stage of syphilis. In such cases it may become positive when the treatment is instituted. The reaction in these cases, in which the Wassermann is likely to be negative, is of diagnostic value because it shows that the case under treatment is reacting to the treatment with the production of allergy. When such a positive reaction becomes negative again, it may be assumed that a temporary immunity has been established.

HIGH BLOOD PRESSURE AND THE HIGH-FREQUENCY CURRENT

To the Editor:—Can high blood pressure be permanently reduced by treatment with high-frequency current? If so, what is the technic?

John H. Murphy, M.D., Geneseo, Ill.

Answer.—There is no reliable evidence that high blood pressure can be permanently reduced by the high-frequency current. Temporary reduction of a few centimeters is secured by currents of a strength of from 400 to 500 milliamperes. This reduction is due to the heating effects of the current and the consequent dilatation of the peripheral blood vessels. If permanent results are to be secured, the treatment must include the ordinary dietetic and hygienic measures.

HYDRAMNIOS IN TWIN PREGNANCY

To the Editor:—Is acute hydramnios of one twin in twin pregnancy a rare condition? I have seen no mention of such a condition in any of the literature I have at hand.

T. F. Laurie, M.D., Auburn, N. Y.

Answer.—Hydramnios is especially frequent in unioval twin pregnancies. In such cases it is commonly the case that one twin exhibits the hydramnios and the other shows the reverse condition of oligohydramnios.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 6-7. Sec., Dr. John Wix Thomas, Phoenix.

California: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

Colorado: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, March 8-9. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven. Homeopathic; New Haven, March 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Eclectic: New Haven, March 9. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

District of Columbia: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.

Idaho: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.

Maine: Portland, March 9-10. Sec., Dr. F. W. Searle, 776 Congress Street.

Massachusetts: Boston, March 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Missouri: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Montana: Helena, April 5. Sec., Dr. William C. Riddell, Helena.

Rhode Island: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

Utah: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

West Virginia: Charleston, April 13. Sec., Dr. S. L. Jepson, 81 12th St., Wheeling.

Wyoming: Laramie, March 11-12. Sec., Dr. H. E. McCollum, Laramie.

Arkansas Homeopathic November Report

Dr. Scott C. Runnels, secretary of the Homeopathic State Medical Board of Arkansas, reports the written examination held at Little Rock, Nov. 12, 1914. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 3, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Arkansas Industrial University	(1889)	87
Boston University	(1890) 98.8; (1897)	94.4

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
Denver Homeopathic College	(1902)	Oklahoma
Cleveland Homeopathic Medical College	(1907)	Oklahoma

Ohio Reciprocity Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports that 10 candidates were licensed through reciprocity, Jan. 5, 1915. The following colleges were represented:

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
Baltimore Medical College	(1909)	Maryland
Detroit College of Medicine	(1894)	Michigan
Univ. of Michigan, Dept. of Med. and Surg. (1899)	(1914)	Michigan
Dartmouth Medical School	(1908)	Maine
Bellevue Hospital Medical College	(1888)	Kentucky
Columbia University College of Physicians and Surg.	(1912)	New York
Cornell University	(1913)	New York
University of Pennsylvania	(1906)	Penna.
University of Pittsburgh	(1912)	Penna.

Rhode Island January Report

Dr. Gardner H. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Jan. 7-8, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 4, all of whom passed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Yale Medical School	(1912)	89.9
Harvard University	(1908)	80
Tufts College Medical School	(1905)	80.4
University of Michigan, Dept. of Med. and Surg.	(1912)	92.7

Book Notices

Mechano-Therapeutics in General Practice. By G. de Swietochowski, M.D., M.R.C.S., Clinical Assistant, Electrical and Massage Department King's College Hospital. Cloth. Price, $1.50 net. Pp. 141, with 31 illustrations. New York: Paul B. Hoeber, 1914.

In his preface, the author recognizes the indifference on the part of medical men with regard to this important adjuvant in therapy, which he attributes to ignorance and to the neglect of the subject in the curriculum of medical schools. He says that the skill of the average man is quite sufficient to start with if shyness could only be overcome. Those who play on the piano or violin will find it a useful talent in this respect, too. Those who cannot rely on their fingers should leave massage alone altogether, rather than have recourse to vibrators, pulsators and other similar instruments. In experienced and reliable hands, however, these mechanical aids may be of service. The indications and contra-indications for the use of mechanotherapy are concisely stated. The technic is then described, with reference to fractures, sprains, dislocations, etc., and also with reference to chronic inflammations and various deformities. The second part of the book deals with the medical uses of massage. In this section it would seem as if more elaboration might be desirable. The treatment of the digestive system is included in seven pages, five of these being devoted to the treatment of constipation. While this brevity is disappointing in a certain way, it has the advantage that the book is restricted to a convenient size, and acquaintance with its contents or that of a similar guide should be regarded as an essential in the equipment of every physician.

Arbeiten aus dem Pharmazeutischen Institut der Universität Berlin. Herausgegeben von Prof. Dr. H. Thoms, Geh. Regierungsrat, Direktor des Pharmazeutischen Institutes der Universität Berlin. Eleventh volume. Paper. Price, 7 marks. Pp. 250. Berlin: Urban & Schwarzenberg, 1914.

This book represents essentially the eleventh annual report of work done in the Pharmaceutic Institute of the University of Berlin, and includes the publications of the year 1913. It includes reports from the division for the examination of medicaments, specialties and nostrums; reports of original work done in the division of organic chemistry, and reports on the work of the division for the examination of foods and other articles of consumption, and of technical products from the colonies. From a medical point of view, the comprehensive review of the new remedies introduced during the year 1913 is perhaps the more interesting in that it presents the essential information in a way that is readily understood. An article on the need for adequately controlling tinctures is also of importance, and serves to emphasize the nature of the control of pharmaceutic preparations that should be exercised by pharmacists. Altogether, this volume reflects the high class work done in the Pharmaceutic Institute of the University of Berlin, and might well be an incentive for the more progressive schools of pharmacy in this country to follow.

Mental Medicine and Nursing for Use in Training-Schools for Nurses and in Medical Classes and a Ready Reference for the General Practitioner. By Robert Howland Chase, A.M., M.D., Physician-in-Chief, Friends Asylum for the Insane. Cloth. Price, $1.50. Pp. 244, with 78 illustrations. Philadelphia. J. B. Lippincott Company, 1914.

This is a good manual for nurses. Nearly one-fifth of its contents is devoted to elementary physiology and psychology—a commendable feature of the book, the student being thus enabled to follow the author intelligently. The treatment is discussed in different chapters both from the physician's and the nursing points of view. On the whole, the subject is handled satisfactorily from the nursing aspect, but the physician who expects much information will be disappointed. The many illustrations have been borrowed from standard text-books on psychiatry and appear in poor print, whereas fewer but original drawings might have contributed much to improve the typographic appearance of the book.

Medicolegal

What Accounted Loss of Half of Finger

(In re Petrie (N. Y.), 151 N. Y. Supp. 207)

The Supreme Court of New York, Appellate Division, Third Department, affirms an award in favor of Petrie by the workmen's compensation commission, which allowed him for the loss of one-half of the third finger when it had been so injured as to require an amputation in which about one-third of the bone of the distal phalange was cut off. The court says that to call this error was taking a limited view of the statute, and one not justified by its remedial character. To get the true spirit of the act, it is only necessary to read the "phalange" clause in full, where, after providing that the loss of the first phalange shall "be considered to be equal to the loss of one-half of such thumb or finger," it continues: "The loss of more than one phalange shall be considered as the loss of the entire thumb or finger," etc. That is, the loss of any part of the second phalange, however slight or immaterial, should be construed as a loss of the entire finger, and yet the court was asked to hold that in the case of the first phalange the destruction must be entire to warrant a holding that this constituted a loss of one-half of the finger. Obviously the taking of one-half of the second phalange of a finger would not result in the relative loss that the taking of the first half of the first phalange would. After the first phalange is gone, what remains of the second, be it greater or less, is comparatively unimportant, yet the statute clearly and unmistakably provides that, where the loss involves "more than one phalange," the loss of the whole finger shall be held to have resulted. This, it seems to the court, is a legislative construction on the clause here under consideration. The substantial injury of the first phalange, requiring amputation, is to be understood as involving the loss of one-half of the finger, and, if the injury extends beyond the first phalange, then it is to be construed as involving the entire finger. Of course, a mere pinching of the finger, which does not result in a permanent injury, is not to be considered as the loss of half a finger.

Improper Use of Scientific Books in Cross-Examination

(Ullrich vs. Chicago City Railway Co. (Ill.), 106 N. E. R. 828)

The Supreme Court of Illinois reverses for error in the use of medical works in the cross-examination of expert witnesses a judgment rendered in favor of the plaintiff for personal injuries. The court says that the plaintiff claimed that before she was injured her health was good, but that after her injury in a street car accident she suffered from hysteria and peritonitis, and that those afflictions were the result of the accident. The defendant sought to show that hysteria can never be the result of or caused by accident, but is congenital. In the cross-examination of the plaintiff's expert witnesses, counsel for the defendant asked each witness whether he knew of or had read certain medical books, etc. During this time counsel exhibited, in the presence of the jury, various text-books, stating, at times, the one he was reading from during the cross-examination, and at one time stating that he had all the books on the subject. He did not offer in evidence any of the medical works which he pretended to have before him and which he used in the cross-examination of the witnesses, but he could not be permitted to do indirectly that which he was not allowed to do directly. He succeeded in conveying the impression to the jury that the witnesses were testifying against recognized authority on the subject of hysteria, which was the only purpose the court can perceive that he could have had in the use he made of the books. The cross-examination was improper and constituted reversible error. The law is well settled in Illinois that scientific books may not be admitted in evidence before a jury, and that such books cannot be read from to contradict an expert witness, except where such expert assumes to base his opinion on the work of a particular author, in which case that work may be read in evidence to contradict him.

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 21-25.

Amer. Assn. of Pathologists and Bacteriologists, St. Louis, Apr. 2-3.
Alabama State Medical Association, Birmingham, Apr. 20-23.
Georgia Medical Association, Macon, April 21-23.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Medical Society of the Missouri Valley, Omaha, March 25-26.
New York State Medical Society, Buffalo, April 27-29.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.

CONFERENCE ON MEDICAL EDUCATION *

Held in Chicago, Feb. 16, 1915

The Eleventh Annual Conference of the Council on Medical Education of the American Medical Association, which was the largest in point of attendance in the history of the Council, met at the Congress Hotel, and was opened with an address by the chairman, Dr. **Arthur Dean Bevan**, Chicago, who said in part: We have recently made a revision of our third classification of medical colleges. During the last eight years the Council has made three separate classifications of medical schools, which have been regarded as temporary. In the last classification the schools were divided into four groups: A plus, A, B and C. The A plus group included those schools which, in addition to having a well-developed medical course, required a premedical science training for admission. Out of about ninety-eight medical schools that remain, however, eighty-four are now exacting this higher preliminary standard, and this has automatically eliminated the A plus classification. There is, therefore, no longer any reason for that special class.

The revised classification divides the schools of the country into three groups: An acceptable group, which the Council believes is worthy of full recognition by the state boards of the country; the C group, consisting of a limited number of schools which, in the opinion of the Council, are unworthy of recognition by state boards, and the B group, which includes schools in the doubtful class, the status of which should be determined by the state boards themselves.

The present classification places sixty-eight schools in Class A, the group of acceptable colleges including the Marquette University, School of Medicine, of Milwaukee, which has just been granted that rating. The New York Homeopathic Medical College and Flower Hospital, which was in the A group, has eliminated itself from that group by its failure to require for admission the premedical sciences of collegiate grade. That is automatic, as by instruction from the House of Delegates of the American Medical Association, no school shall be retained in the A group which does not require this premedical collegiate preparation. In the same manner a few schools will be automatically dropped into Class C unless they are so reorganized as to eliminate the stock feature, since under the instruction of the House of Delegates last June, no college is to be rated higher than Class C which is conducted as a stock corporation in the interest of the stockholders.

Eleven Years' Progress in Medical Education

Dr. **N. P. Colwell**, Chicago: Thirty-seven medical colleges began this year the enforcement of the entrance requirement of a college year in physics, chemistry and biology, joining the forty-seven which had already gone to that or higher entrance requirements, making altogether eighty-four medical colleges out of the present 100 operating under the higher standard.

The supply of medical schools in 1904 was far above normal, but has been reduced to an even 100 medical colleges. It will probably be further reduced by at least three or four by the end of June.

The percentage of medical colleges requiring two years of collegiate work exceeded that of the colleges requiring one year until 1913, when 33.7 per cent. required two years and 49.5 per cent. required one year. That the requirement of two years of collegiate work will eventually be the minimum requirement for admission to medical colleges in this country, however, is conclusively indicated by two factors. One is that the thirty-nine medical schools have already gone on that standard and that medical schools are so generally becoming medical departments of universities, where the two-year requirement is more satisfactory; the other is that already seven state medical licensing boards require two years of college preliminary preparation as an essential qualification for the license to practice medicine in those states, and the boards of several other states are about to adopt a similar standard.

Of the 100 medical colleges still existing, eighty-four have put into effect the requirement for admission of one or more years of collegiate work in addition to a high school education. In forty-seven colleges the higher requirement became effective in 1913 or earlier, and from forty-one of these, reports have been received showing this year's enrolments of students, and all but four report either increased enrolments, or larger freshman classes. In thirty-seven colleges the higher requirement began in 1914—at the beginning of the present college session—and, with one exception, these colleges had decreased enrolments, as was expected.

VARIATION IN MEDICAL COLLEGE ENROLMENTS

Figures showing number of colleges having enrolments in the session of 1914-15 larger, equal or smaller, respectively, than in the session of 1913-14.

Total Registration This Year	Number of Medical Colleges Requiring for Admission					Total Colleges
	Two Years of Coll. Work Effective in		One Year of Coll. Work Effective in		High School Course	
	1913 or Previous	In 1914	1913 or Previous	In 1914		
Increased...	22	..	7	1	3	33
Equal......	3	..	1	..	..	4
Decreased...	4 (3)	3 (1)	4 (2)	28 (2)	5	44 (8)
Totals....	29	3	12	29	8	81

Figures in parenthesis show number of colleges which, although the total enrolment was diminished, had larger freshman classes than a year ago.

Reports were also received from eight medical colleges which continue to admit students having only a high school education. Unusually large enrolments were expected in these colleges owing to the higher standards enforced elsewhere. It was surprising, therefore, that only three had increased enrolments, and in these the increase was small.

In the eighty-one colleges from which reports for the present session have been obtained, there are 12,235 students as compared with 13,568 in the same colleges a year ago — a reduction of nearly 10 per cent.

In the thirty-seven medical schools which began the higher requirement in 1914, the percentage of decrease varied considerably, depending on the thoroughness with which the requirement was enforced.

The lack of proper enforcement of preliminary standards in most of these colleges is apparently due to the lack of proper methods or to a misconception of what the educational standards really call for, rather than to an intentional disregard of those standards.

The weakest points in the administration of entrance requirements during the past year have been found to be: (*a*) the continued desire on the part of some colleges to obtain students by the use of makeshift methods; (*b*) the wide variation in the value of certain certificates of examination which students may present; (*c*) the lack of effective methods of certification and evaluation of credentials, and (*d*) the lack, in many schools, of competent officials who have become expert in evaluating credentials.

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* The complete report of this conference, including the discussions, will be published in the March 15 number of the American Medical Association Bulletin. A copy will be sent to any address on receipt of 5 cents.

A routine method of verification of every credential presented by the student, therefore, whether it be a diploma or a certificate of examination, should be rigidly adhered to. A simple but effective routine method is as follows: (*a*) obtain from the student, in writing, a complete educational history showing when and in what school or schools his preliminary preparation was obtained; (*b*) obtain evidence from the most reliable sources regarding the standing of the schools or colleges attended—whether they are worthy of being accredited or not, and (*c*) obtain direct from the principal of the secondary school attended a statement giving the various subjects studied; the school year in which each was taken; the text-book used; the number of weeks covered; the number of periods per week; the length of the periods in minutes; the final grades obtained, and also whether or not the student graduated. A similar statement should be obtained from the registrar of any college attended, showing the time the student spent in college, the courses completed and the grades obtained.

Heretofore, in the administration of entrance requirements, the deans of medical colleges had chiefly to do with high schools; but now that entrance requirements have been advanced so as to include one or more years of collegiate work there comes the question: What constitutes "collegiate" work? It is well known that some colleges so-called are teaching little else than secondary school courses. In order to specify more clearly the actual education desired, the Council's educational standards suggest that "college work" should not be considered as such unless it has been preceded by a completed course of study in a standard four-year secondary school or its full educational equivalent. Such discrimination will at once eliminate the short-cut, secondary school-colleges which endeavor to crowd the work of several years into three or four. Such procedure will also be a powerful factor in standardizing the colleges of liberal arts.

There are now six medical colleges which require that hereafter every student enrolled must complete a year's internship in an approved hospital before he will be granted his M.D. degree.

On the whole, the progress being made along all lines of medical education is simply amazing to those who are in position to follow it. Much of the progress is within the medical schools, in the improved laboratories, the securing of more and better teachers, the close relations with hospitals and the improved methods of clinical teaching — facts that do not come to the attention of the casual observer.

The chairman presented Dr. Victor C. Vaughan, chairman of the Committee on Reorganization of Clinical Teaching, who read a paper based on the reports received from the individual members of the committee (see page 785).

DISCUSSION

Dr. William H. Welch, Baltimore: The time has come, as is recognized by the Council, to approach the important problem of clinical teaching and the organization of medical clinics. It is unquestionably a fact that there has not been a corresponding advance on the clinical side comparable to that on the laboratory side.

As to the full time system minus the provision that the head of the clinic shall receive a salary which will enable him to be independent of seeking other sources of income from private practice, we have not attempted at the Johns Hopkins to go quite to the extent of the full time proposition which is advocated. There is a little too much emphasis put on the full time plan running down through the whole system below the head of the department. We were very careful in presenting the subject to the General Educational Board to indicate that there would be a very important need in the medical school of men engaged in practice, and some of the physicians suggested as full time men had better be part time men.

As to how the medical school is to obtain a teaching hospital, the university has to provide its own. The future will depend on properly endowed hospitals, but above all, public hospitals, municipal hospitals, supported by public funds, being placed, as they are in Europe, to a very large extent at the disposal of the medical schools for teaching purposes.

As to the hospital year, I think it is premature for us at the moment to require this year for a degree. If we are to have another year added, it is a serious matter from the point of view of medical education. It is not perfectly clear that that is the best use of the added year, and it is a year over which the university conferring the degree has very little control.

President Henry S. Pritchett, of the Carnegie Foundation for the Advancement of Teaching, New York: It seems to me, it is clear that the clinical teacher must have as his primary work the work of the school and hospital; that it is no longer possible to administer a very large practice and be at the same time a clinical teacher of the type which is now necessary. I think in many medical schools clinical teachers fail to realize how quickly raising the entrance requirements has reacted on the clinical teachers. Once you require a student to be fairly well educated, he is no longer going to be satisfied with the kind of clinical teaching which was perfectly acceptable ten or twenty years ago, and so we may assume as the outcome of this discussion that the medical profession and medical teachers are ready to accept the principle that the clinical teacher must be, first of all, a worker in the school and hospital and his practice must be secondary. In the second place, it is perfectly clear that if he is to give his primary work to the school and hospital, then the facilities for such work must be afforded. There is no use in having a man whose primary work is that of teaching and who is engaged in hospital work, unless the facilities are adequate for laboratory work.

Dr. George Dock, St. Louis: I think what Dr. Welch has said about the intern year is extremely well taken. I myself have taken the same ground ever since the movement for the intern year started. We need a clinical clerk year much more than an intern year, for the reason that very few hospitals are satisfactory training grounds now for well-trained medical students.

Dr. Samuel W. Lambert, New York: There is only one point I would like to emphasize, and that is entirely connected with the financial side in the reorganization of clinical instruction. It costs medical schools now about three times as much money per student as that student pays in tuition fees, even in schools that have between 300 and 400 students. The great problem for most schools to-day is to devise some scheme by which the two corporations — one the medical school and university, and the other the hospital — can work together for the common good of medical education.

Dr. J. M. Baldy, Philadelphia: No school can hope, unless it has an exceedingly small class, personally to control sufficient hospital facilities to give an ideal internship. If the internship is to be a success, the trustees of hospitals and of school hospitals must see that the proper facilities for such are afforded.

President George E. Vincent, of the University of Minnesota, then read a paper on "The University and Higher Degrees in Medicine" (see page 790).

DISCUSSION

President Harry Pratt Judson, of the University of Chicago: There are many physicians who would find it to their advantage to go back to a medical school and undertake work of various kinds in order to bring themselves up to the point of advanced medical science. They desire to refresh their knowledge of certain things which they did not take a strong hold of in their undergraduate days. They want to make themselves more efficient and more intelligent men. That is an excellent function of a graduate school connected with a medical school. In all graduate schools there are a small number of students or doctors of medicine who will be engaged in work of an advanced character that is entirely beyond the work carried on for the instruction of undergraduates, such as that involving especially productive investigation in some of the most recondite lines. It is the kind of work in which we wish to train a small number of choice men, and they are the ones who are doing the real graduate work about which President Vincent has spoken. That, it seems to me, will involve another very important consideration: For the class of work done by graduate students, the ordinary faculty giving undergraduate instruction in a medical school will suffice; but for the second class we must have choice men, men of power and breadth of vision engaged in large investigations, the kind of men essential for the guidance of a few choice students in medicine. If we are to develop in that line in our medical schools, it will become more and more essential for our universities to develop that kind of men and put them in charge of this kind of work. It cannot be class work, but it must be thorough, personal work, and it is a great privilege for any man of ambition to work with such men. It does not matter how long he works, provided he completes certain definite work.

Dr. William Charles White, Pittsburgh: On account of lack of thoroughness in the human individual, the great majority of all graduates of schools of medicine will be simply visualizers. I doubt whether it will ever be different. In the general hospitals in which medical education is given, as they are constructed to-day, we have excluded the great mass of diseases from which the populace suffers—tuberculosis, venereal diseases, infectious diseases — all the things that are demanded of the visualizers who are usually employed for this work. In addition we graduate technicians, certain mechanicians, surgeons and probably sanitary engineers, and I think it might be well in considering medical education to-day to hold back in a measure in the evolution and see if we cannot fulfil what will conduce to public welfare rather than to turn out a fully equipped, high grade technician as the result of our medical educational work.

Dr. M. J. Rosenau, Boston, then presented a paper on "Courses and Degrees in Public Health Work" (see page 794).

DISCUSSION

Mr. William C. Hoad, Professor of Sanitary Engineering, University of Michigan: As community life grows more complex, the civil engineer and the physician will be brought into more intimate relations. Both labor toward the same great end, and each will find himself able, through cooperation with the other, more and more effectively to serve his community and to discharge fully the high obligations laid on him by his profession. I am thoroughly convinced by the full and hearty cooperation of these two in public health work, that the present large administrative problems may be attacked from a surer base, the reputation of the health department will be enhanced, and new sources of support for it will be made available, and there will be opened up new fields of usefulness as yet unoccupied.

Preparation of Specialists in Ophthalmology and Otolaryngology

Dr. Frank C. Todd, Minneapolis: The University of Minnesota Medical School last year established courses for the preparation of specialists, not only in ophthalmology, but also in all branches of medicine, and in a modest way began the operation of that plan last September.

The requirements for admission to the courses in all departments are, first, graduation from a high grade medical school and, second, the completion after graduation of one year's internship in a general hospital or its equivalent. The courses then cover a period of two and three years, depending on the specialty and the length of time the student desires to devote to his work. On the successful completion of two years of work in any specialty, together with the completion and written report of a piece of research work, the student will be granted a degree, Master of Science, in whatever department he has conducted his work.

As to the time when it is best after graduation in medicine for the practitioner to begin his preparation for his specialty, I believe that whatever specialty he undertakes, the earlier, after securing his M.D. degree, the aspirant bends his steps in the direction of his specialty the better.

In ophthalmology and otolaryngology the student must acquire a detailed and thorough knowledge of anatomy of the head, face and neck, with especial reference to the eye and ear and air passages. During his three years' course it would seem to be necessary for a physician preparing himself to become a specialist in ophthalmology and otolaryngology to spend one-half of his time in laboratory and other work, not consisting of clinical work in ophthalmology and otolaryngology. This includes experimental surgery and some research work, for which time should be allowed and for which encouragement should be given. This leaves one-half the time for clinical work in ophthalmology and otolaryngology, which should commence at the beginning of his course. It will consist of history taking, of learning the technic of handling instruments, of daily work in assisting in the outpatient clinic and in assisting in operations, as well as following up the care of the patients at the bedside. Later, and after experimental work has been done on the cadaver and animals, and the student has demonstrated his fitness, he should be given opportunity to do the simpler operations at first and later the more complex ones.

DISCUSSION

Dr. Edward Jackson, Denver: With reference to a degree, speaking for myself and for my colleagues, if there is any general agreement on the subject to give the degree of Master of Science or Doctor of Science in ophthalmology or any other branch—and the proposition appeals to me strongly — if university authorities agree that this should be done. I am sure the University of Colorado will quickly fall in line with such a movement.

Report of the Committee to Investigate Graduate Medical Instruction

Dr. Horace D. Arnold, Boston, Chairman, presented the report on graduate medical instruction, which is abstracted as follows:

The problem of instructing graduates in medicine should be considered from the standpoint of the public good. The aim is to furnish better doctors to the public. Much has been accomplished by raising the standards of medical schools; and the problem of the proper training of medical students may be regarded as practically settled for the present. The most difficult and the most important problem to-day is that of raising the standard among physicians who are already in practice. It is clear that different classes of students need very different opportunities, and courses of instruction to meet their needs must vary from elementary to very advanced courses, students being admitted only to courses which they are qualified to take.

During the past year the committee inspected the more important "postgraduate" schools of the country—independent schools organized for the purpose of teaching medical graduates. These schools vary from good to very bad. Not only is the instruction poor and the equipment inadequate in many of them, but some are clearly commercial in type, carried on for the direct or indirect gain of the instructors. The existence of such schools, and the difficulty of controlling them, shows the weakness of the plan of depending on these independent schools for adequate instruction for graduates. Hence it is desirable that good medical schools should undertake this form of instruction as far as they are able.

The medical profession is becoming convinced of the necessity of establishing standards for specialists. Nothing brings greater discredit to the profession than the blunders of self-styled specialists who have had an inadequate training. The training of specialists is clearly a form of graduate instruction. It should involve a systematic course of instruction of at least one year, followed by a year or more of supervised clinical experience. This involves the organization of a graduate medical department, the possession of exceptionally good clinical facilities, and close affiliation with suitable hospitals. Such a course is worthy of recognition by some form of degree—a "higher" degree in medicine than M.D.—and it is desirable that such degrees should be granted only by universities. It is clear that only university medical schools which have exceptionally good opportunities should attempt the training of specialists.

Aside from opportunities for research, our best medical schools have made little provision for graduates who seek advanced instruction. Several of the schools, however, are beginning to give serious consideration to the problem of graduate teaching, and this should be encouraged. Instruction of this type should be of the highest grade, and the best schools may well consider that it is a duty they owe to the community to meet the demand for such courses.

The problem of graduate medical instruction is very different from that of the undergraduate school. There is no fixed curriculum, and no definite number of subjects that must be covered. It is creditable for a school to offer but a single course, if it is a good one, but discreditable to try to cover more ground than it can do well. If a school offers only a few courses, it is not necessary to have any special machinery or organization to take charge of the work. Each department can organize and manage such courses as it wishes to offer with a little extra work for the administrative force of the school. Only when this form of instruction is undertaken on an extensive scale is it desirable to establish a separate department or school.

Hitherto the better "postgraduate" schools have been successful because they had to compete only with poorer schools of the same class. If the good medical schools enter this field of teaching, these schools will have to come up to the standards of good medical schools or they will deteriorate and fall to the level of the poorer "postgraduate" schools, chiefly through the loss of their best teachers. Many of these men stand very high in the estimation of the profession. They are interested in graduate teaching more for the good it will do than for personal satisfaction and have become associated with "postgraduate" schools because there were no others where such teaching could be done. These men will not stay with schools of inferior grade if good medical schools undertake the work.

The best "postgraduate" schools have suffered in reputation by being placed in the same class with the poorer schools, and will suffer still more as attention is directed to standards. The solution of this difficulty would be to seek affiliation with good medical schools or with universities. To secure such affiliation, a "postgraduate" school must come up to the standard of the school with which it seeks affiliation. Few, if any, of these schools can hope for affiliation with the best medical schools on their present basis. They must bring their weak departments up to the standard before seeking affiliation; or they must be prepared, in arranging an affiliation, to drop poor instructors and to give up weak courses.

Owing to the great difference in the previous training of graduates who seek instruction, there can be no uniform admission requirements of an educational character. For the benefit of the public, even the most poorly trained practitioner, if he is legally entitled to practice medicine, should have an opportunity to improve his medical knowedge. It is also desirable, on the contrary, that graduates from poor schools who are not registered should not be able to coach up in these courses and learn just enough to pass the state licensing boards.

It is recommended that a certificate be regarded as a diploma; that the minimum time requirement be four months of all day work, taken consecutively; that it should be granted only for a systematic course, approved by the school, in which attendance and work have been satisfactory, and that the student must pass an examination based on this course of study. A school may issue for shorter courses an official statement as to a student's attendance or the character of his work; but the form must be such that it does not resemble a diploma.

The Council will not at present attempt to divide all the independent schools into those which are approved and those which are not approved. Any such school, however, may apply for the approval of the Council. Such approval may be granted if the school meets the requirements as to admission and certificates, and if, in all departments in which instruction is given it comes up to the standard of a Class A school.

DISCUSSION

Dr. James F. McKernon, New York: No distinct advantage is to be gained by putting restrictions or prohibitions in the way of any earnest practitioner. The more the student is restricted, the more you coerce him, the less will you guide him and the less you will teach him, and the less you benefit the community. I believe that the better class of postgraduate medical schools is doing a work that at the present time cannot be undertaken by any other institutions in this country. When the undergraduate schools give us better material, we will turn out a better finished product, but because the practitioners at large have deficiencies of early training we should not close the door of further medical instruction to them because of their lack of training.

Dr. George M. Kober, Washington, D. C.: The public is vitally interested in the solution of the question, If certain diseases are preventable, why are they not prevented? I hail with delight every effort that is being made by institutions of higher learning to afford facilities for the equipment of men to carry on this noble mission.

Dr. Walter L. Bierring, Des Moines, Iowa: It requires special facilities for graduate instruction in different lines for specialties, and it requires coordination of the engineering and medical courses to train health officers adequately, and it seems to me they have almost ideal arrangements for this combination at Harvard Medical School with the Massachusetts Institute of Technology which cannot be duplicated in many places in this country.

Dr. N. P. Colwell then presented a preliminary report on the "Standardization of Hospitals." Before the hospital internship could be made a fixed requirement for all medical college graduates, it was necessary to see whether there were enough good hospitals to provide the internships needed. Early in 1913 a preliminary investigation of the hospital situation was begun. This investigation showed that there were 924 hospitals in the United States having 100 beds or more, and 1,500 others having from twenty-five to 100 beds, or altogether 2,424 hospitals having over twenty-five beds. These hospitals had altogether 193,056 beds, or an average of ninety-two each, and would provide places for about 4,000 interns, allowing fifty beds per intern, or for 8,000 interns if there was one intern for every twenty-five beds. Since there were less than 4,000 medical graduates each year, if all these hospitals made use of interns, there would surely be enough places for all. But not all hospitals were using interns. Of the 2,424 hospitals, reports were received from 2,185, and of this number only 852 hospitals were regularly using interns, the total number of interns provided for being 3,006. Sufficient places, therefore, were not being provided, since in that year there were 3,981 medical graduates. One of the chief objects of a general investigation of hospitals, therefore, will be to induce a larger number of those which are approved to provide for the training of interns.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

February, XXXVI, No. 3, pp. 239-351

1 Changes in Blood after Muscular Activity and During Training. E. C. Schneider and L. C. Havens, Colorado Springs, Colo.
2 Neutralizing Power of Saliva in Its Relation to Dental Caries. J. A. Marshall, Berkeley, Cal.
3 *Influence of Blood Transfusion on Hyperglycemia and Glycosuria of Pancreatic Diabetes in Dog. A. J. Carlson and H. Ginsburg, Chicago.
4 *Influence of Blood Transfusion on Kidneys. I. A. Rabens, Chicago.
5 Threshold Stimulus of Chorda Tympani Nerve in Relation to Salivary Secretion and Vasodilatation. C. M. Gruber, Philadelphia.
6 *Factors Affecting Coagulation Time of Blood. VI. Effect of Rapid Progressive Hemorrhage on Factors of Coagulation. K. R. Drinker and C. K. Drinker, Boston.
7 Vasomotor Nerves of Portal Vein. R. Burton-Opitz, New York.
8 *Influence of Pupillary Diameter on Visual Acuity. P. W. Cobb, Cleveland.
9 *Effect of Repeated Injections of Pituitrin on Milk Secretion. S. Simpson and R. L. Hill, Ithaca, N. Y.

3. **Blood Transfusion in Pancreatic Diabetes.**—The transfusion of normal blood into dogs in pancreatic diabetes Carlson and Ginsburg found causes a temporary lowering of the hyperglycemia. But before this can be taken as an evidence of the presence in normal blood of an internal secretion from the pancreas, it must be shown that this temporary lowering of the hyperglycemia is due to storage and oxidation of sugar in the tissues. Their work indicates that sugar retained as a result of the blood transfusion is not subsequently excreted. If this is the case, what can happen to this sugar except oxidation in the tissues? In the first place, a temporary lowering of the rate of tissue metabolism might account for temporary fall in blood sugar. Or, the metabolism rate being the same, some of the sugar may disappear by way of the digestive secretions and bacterial oxidation in the digestive tract.

4. **Influence of Blood Transfusion on Kidneys.**—Rabens' results fail to bring any evidence of injury or depression of the kidneys by Carlson's method of transfusion.

6. **Effect of Hemorrhage on Coagulation of Blood.**—The Drinkers emphasize that rapid progressive hemorrhage causes a progressive decrease in coagulation time. An occasional animal proves an exception to this rule and shows no change in its rate of clotting, no matter how severe the hemorrhage. Antithrombin decreases in amount when the coagulation time decreases and remains practically constant when the coagulation time is unchanged. Prothrombin tends first to increase slightly in amount and then to decrease slightly. Fibrinogen, estimated by the heat coagulation method, decreases as hemorrhage progresses. Platelet counts do not vary with rapid progressive hemorrhage.

8. **Influence of Pupillary Diameter on Visual Acuity.**—By the use of circular diaphragms before the eye Cobb demonstrated that an aperture for optimal visual acuity exists somewhere between the limits 1 and 5.6 mm. for brightness of test-object from 5.9 and 189 candles per square meter. When the illumination of the test object is compensated for the size of aperture to give equally bright images on the retina, the optimum is somewhat less than when constant illumination is used and the brightness of the retinal image varies with the pupillary area. In the former case it falls at 2 to 4 mm., in the latter at 4 mm. on the average.

9. **Effect of Pituitrin on Milk Secretion.**—The administration of pituitary extract, by intravenous, intramuscular or subcutaneous injection to a lactating animal led to a marked increase in the quantity of milk secreted and also in its fat content. In the goat, if the injection was continued at intervals over a prolonged period—several months—immunity to its action on the mammary glands appeared to be established both in regard to the amount of milk yielded and the percentage of fat it contains.

Boston Medical and Surgical Journal

February 18, CLXXII, No. 7, pp. 241-284

10 *Treatment of Diabetes. F. M. Allen, New York.
11 Some Perils Confronting State Care of Insane. C. P. Bancroft, Concord, N. H.
12 Preoperative Diagnosis of Tubercular Mesenteric and Retroperitoneal Glands. E. H. Risley, Boston.
13 Localized, Subacute Form of Bronchopneumonia. R. C. Larrabee, Boston.
14 Field for Local Anesthesia and of Spinal Anesthesia in Genito-Urinary Surgery. A. H. Crosbie, Boston.

10. **Treatment of Diabetes.**—Allen maintains that diabetes is not a disease but merely the weakness of a bodily function, namely, the function of assimilating certain foods. If diabetes is a weakness of the pancreatic function one can understand why the breakdown is most frequent in elderly persons, but generally most serious in young persons. Stop glycosuria by fasting, and then place the animal on a low diet which will support life without producing glycosuria. Such an animal is thin, but strong and lively, with no cachexia and no sign of downward tendency. The treatment for patients is similar. The first step is to fast till glycosuria ceases, and then for twenty-four or forty-eight hours longer. At the same time, the ketonuria falls steeply. It quickly approximates what a normal individual would show under similar conditions, and the aim is to keep it constantly down to this level. Plain fasting suffices for the purpose; but since alcohol is a food which does not produce glycosuria and is said to diminish ketonuria, it is generally given during fasting, especially if there is danger of coma. Its use or omission in later treatment depends on individual conditions. Alkalies may be useful for the first few days if coma seems imminent, but are then no longer needed.

When the fasting patient has been free from glycosuria for twenty-four to forty-eight hours, the next step is to begin feeding very slowly and cautiously. There need not be a fixed program. It is desirable to individualize the diet to suit the needs of different patients. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast day, with or without alcohol. The original fast, to clear up the urine in the first place, may be anything from two to ten days, but after that no fast need be longer than one day. The things to be considered in the diet are carbohydrate, protein, fat and bulk. Frequently the first thing given after the fast is carbohydrate. No distinction is necessary between different forms of starch, but there are advantages in using vegetables. The first day after fasting, the only food may be 200 gm. of vegetables of the 5 and 6 per cent. classes. This is increased day by day until a trace of glycosuria appears, which is checked by a fast day. The purpose of such a program is to learn the carbohydrate tolerance and to clear up the last traces of acidosis. After this carbohydrate period, or sometimes in place of it, protein is given. On the first day perhaps one or two eggs are given, and nothing else. More protein, generally as eggs and meat, is added day by day, until the patient either shows glycosuria or reaches a safe protein ration. The purpose here is to learn the protein tolerance, and to cover protein loss as quickly as possible. Fat is somewhat less urgently needed, except in very weak and emaciated patients; it can be added gradually, as conditions seem to indicate. An element of bulk in the diet is necessary to give the comfortable feeling of fulness and to prevent constipation. This is the great advantage of green vegetables. When they are fed raw, or cooked in steam, or boiled and evaporated so that no water is thrown away, they contain a definite quantity of carbohydrate besides valuable salts; and this is the only form of carbohydrate that patients thus treated ordinarily receive. Some cases are so severe that even green vegetables cannot be tolerated. Under these conditions the vegetables may be boiled through three waters, throwing away all the water. Nearly all starch is thus removed, and the most severe cases generally take these thrice-cooked vegetables gladly and without glycosuria.

One result of the initial program described is the loss of weight. The attempt to put on weight, Allen says, is one of the surest ways of bringing back all the symptoms and sending the patient down hill. It is probably one of the chief causes of past failures in treating severe diabetes. In the severe cases it is found necessary to restrict all classes of food, and to test the tolerance of each patient for each particular class. Carbohydrate is given if possible, but is kept safely below the limit of tolerance. Protein must be kept fairly low, sometimes very low. With a dangerously low protein tolerance the working rule has been to exclude all carbohydrate, then feed as much protein as is possible without glycosuria. The histories of four of the twenty-seven patients so treated in the Rockefeller Hospital are cited.

Lancet-Clinic, Cincinnati

February 6, CXIII, No. 6, pp. 143-168

15 *Renal Infections from Bacteriologic Point of View. I. S. Koll, Chicago.
16 *Anuria: Its Etiologic and Surgical Phases. H. Cabot, Boston.
17 Genital Tuberculosis. R. W. Staley, Cincinnati.
18 Nucleate of Soda and Dementia Praecox. B. Holmes, Chicago.
19 Incurability of Tuberculosis. T. W. Schaefer, Kansas City, Mo.

15. Abstracted in The Journal, Nov. 14, 1914, p. 1786.

16. Abstracted in The Journal, Nov. 21, 1914, p. 1878.

Laryngoscope, St. Louis

January, XXV, No. 1, pp. 1-64

20 Use of Plastic Operations in Large Mastoid Cavities. E. R. Carpenter, El Paso, Tex.
21 Ocular Symptoms of Brain Abscess and Sinus Thrombosis of Otitic Origin. Report of Case. G. B. Jobson, Franklin, Pa.
22 Symptoms and Diagnosis of Laryngeal Tuberculosis. E. F. Ingals, Chicago.
23 Removal of Open Safety Pin from Esophagus Under Suspension. W. B. Chamberlin, Cleveland.
24 Abscess Following Tonsillectomy Under Local Anesthesia. D. A. Vanderhoof, Colorado Springs, Colo.
25 Intranasal Operation, with Guide for Cure of Dacryocystitis. F. M. Hanger, Staunton, Va.
26 Case of Dacryocysterhinostomy. O. Glogau, New York.
27 Nose-Throat, Ear, Orbital and Intracranial Complications in Accessory Sinus Diseases. L. D. Brose, Evansville, Ind.
28 Teeth as Primary Factor in Diseases of Ear, Nose and Throat—Diagnostic Value of Cooperation of Otologist, Rhinologist, Laryngologist with Dentist. D. B. Freundlich, New York.

Medical Record, New York

February 20, LXXXVII, No. 8, pp. 295-336

29 Method of Feeding Infants with Precision. A. E. Mucklow, Brooklyn.
30 Program of Psychiatric Progress. A. J. Rosanoff, Kings Park.
31 Tuberculin Therapy. F. M. Pottenger, Monrovia, Cal.
32 Perineorrhaphy, Puerperal Septicemia and Pain. J. M. Mabbott, New York.
33 Psychology of Tuberculosis. S. Bauch, Bedford Hills.
34 Catatonic States in Manic Depressive Insanity. J. Smith, Brooklyn.
35 Some Peculiar Mould Diseases. B. G. R. Williams, Paris, Ill.
36 Tube for Use in Phlebotomy. W. Spielberg, New York.

Michigan State Medical Society Journal, Grand Rapids

February, XIV, No. 2, pp. 75-148

37 Kinetic System. G. W. Crile, Cleveland.
38 *Postoperative Ileus and Ileus Accompanying Peritonitis. R. C. Andries, Detroit.
39 Early Diagnosis in Pulmonary Tuberculosis. J. S. Pritchard, Battle Creek.
40 Evidences of Colitis and Intestinal Toxemia in Chronic Diseases and Its Treatment. M. A. Mortensen, Battle Creek.
41 Skull Fractures. F. B. Walker, Detroit.
42 Ectopic Pregnancy. Twice in Same Patient within Five Months. Report of Case. R. J. E. Oden, Cadillac.
43 How Epidemic of Diphtheria was Checked by Thorough Isolation of Carriers. E. H. Foust, Ithaca.
44 *Analysis of Mortality of Abdominal Surgery. R. E. Skeel, Cleveland.
45 Case of Convulsions in New-Born Baby. A. H. Beifeld, Ann Arbor.
46 Exfoliative Dermatitis and Granuloma Fungoides Showing Results of Treatment. U. J. Wile, Ann Arbor.

38. **Postoperative Ileus and Ileus Accompanying Peritonitis.**—The critical condition of a patient suffering with ileus, Andries says, is largely due to a loss of body fluids. Enterostomy, for postoperative ileus that will not quickly yield to stomach lavage and enemata is a life-saving measure. It is really Nature's method of effecting a cure. Enterostomy, in advanced cases of peritonitis in cases in which abdominal distention is marked, is a logical procedure and deserves universal adoption.

44. **Analysis of Mortality of Abdominal Surgery.**—It is Skeel's belief that proper selection of the anesthetic for the case and proper handling of the tissues together with correct determination of the amount of operating which the patient can safely stand will do more to lessen the mortality rate in the hands of the average surgeon than any attempt to follow spectacular methods under fanciful names which appear like a comet, loom large for a time and are forgotten so soon as the commotion produced by their unusual character has had time to subside.

Modern Hospital, St. Louis

February, IV, No. 2, pp. 73-146

47 Some Aspects of Use of Proprietary Foods in Diabetic Dietary. J. P. Street, New Haven, Conn.
48 Place of Hospital in Preventive Medicine. E. L. Fisk, New York.
49 Proposed Method of Hospital Standardization. R. Waterman, Philadelphia.
50 Hospital Roentgen Ray Laboratory—Its Scope and Limitations. I. S. Hirsch, New York.
51 Feeding the Hospital—Food. L. Graves, Cleveland.
52 Hospital Home Experiment with Tuberculous Families. E. C. Brenner, New York.
53 Systematic Ambulance Service for Metropolitan Hospitals. N. Maul, New York.

New York Medical Journal

February 13, CI, No. 7, pp. 277-332

54 Shockless Operation. W. F. Campbell, Brooklyn.
55 Diseases of Epididymis and Testicle. H. H. Morton, Brooklyn.
56 Results of Transvesical Prostatectomy. P. M. Pilcher, Brooklyn.
57 Twilight Sleep. J. O. Polak, Brooklyn.
58 Gynecologic Operations on Insane. G. Gibson, Brooklyn.
59 Fracture of Lower End of Humerus with Displacement. J. S. Wight, Brooklyn.
60 Personal Factor in Infant Feeding. L. Kerr, Brooklyn.
61 *Pelvic Abscess Following Fowler Position in Appendicitis. H. B. Delatour, Brooklyn.
62 *Control of Hemorrhage in Suprapubic Prostatectomy. R. S. Fowler, Brooklyn.
63 Etiology and Treatment of Colonospasm. D. Roberts, Brooklyn.
64 *Standardization of Preparation of Patients for Abdominal Operations. H. F. Graham, Brooklyn.
65 Alcohol and Iodin as Germicides. A. Comstock, Brooklyn.
66 Chorea Mollis with Muscular Atrophy. Report of Case. J. M. Wallfield, Brooklyn.
67 Menace of Antimedical Legislation. W. J. Cruikshank, Brooklyn.

February 20, No. 8, pp. 333-384

68 *Drainage of Seminal Vesicles. J. B. Squier, New York.
69 New Test of Blood Serum and Cerebrospinal Fluid in Syphilitic Involvement of Nervous System. A. Gordon, Philadelphia.
70 Radium in Cancer of Bladder. W. Ayres, New York.
71 Mannerisms and Their Relation to Psychic Life. J. P. H. Murphy, Washington, D. C.
72 Coccus Found in Foot and Mouth Disease. F. Proescher, Pittsburgh.
73 Foreign Body in Psoas Muscle. P. Le Breton, Buffalo.
74 Tonsillectomy. C. H. Smith New York.
75 Condensed Milk. P. Bartholow, New York.

61. **Pelvic Abscess Following Fowler Position in Appendicitis.**—Delatour emphasizes, that in those cases of septic peritonitis, in which the patient continues to show abnormal temperature, and the wound looks healthy, and careful examination of it shows no undrained pockets, be sure to make a rectal examination, especially if the patient is losing ground, and has frequent bowel movements, with tenesmus and the discharge of mucus. If on examination, an abscess is found, do not hesitate to drain it through the rectum. There is apparently little or no danger of infection from this source. To wait for the abscess to be reached easily from in front, is to lose valuable time, and the incision through the abdominal wall will leave a weak point for the development of hernia, as drainage must be continued for some time. While aspiration may prove satisfactory in some cases, we recommend incision whenever possible.

62. **Control of Hemorrhage in Suprapubic Prostatectomy.**—The method which has been entirely satisfactory in Fowler's hands is as follows: The tip of a tube of a suction apparatus with a direct inflow for hot solution is placed in the cavity from which the prostate has been removed. The inflow tube is connected with an irrigator containing boiling water. The sucking portion of the apparatus is connected with the vacuum bottle in which a vacuum is maintained in the usual manner by flowing water. The apparatus, before its introduction, is tested, for it is important that suction be perfect. Introduced into the cavity with the inflow tube shut off, all blood is sucked out, and while this suction is continued the boiling water is allowed to flow through the inflow tube into the cavity. The inflow is regulated so that the suction does not allow the boiling solution to come in contact with any but the raw tissues. After two minutes' application of the boiling solution hemostasis is complete, and the surrounding parts have not been injured.

64. **Preparation of Patients for Abdominal Operations.**—A single standard method used throughout all hospitals in preparing patients for abdominal operations is proposed by Graham. It is as follows: 1. Tasteless castor oil—1 ounce—on admission but not later than 7 p. m. 2. Tub bath, if necessary. 3. Shave, with tincture of green soap, followed by alcohol and allowed to dry while the mouth is inspected, dirty teeth cleansed with a cotton swab and, if necessary, painted with tincture of iodin. The razor should be sterile. 4. Paint the area with one-half strength tincture of iodin and apply sterile compresses. 5. Farinaceous diet is ordered and a pitcher of water and a glass placed by the bedside and the patient encouraged to drink freely. 6. Physical examination by the house surgeon. 7. Specimen of urine sent to

the laboratory for examination. 8. Enema at 9 p. m. and trional, grains 5, and sodium bromid, grains 30, given. 9. In the morning, weak tea or coffee or water allowed up to within two hours of operation, unless special contra-indication exists. 10. Emptying of the bladder or catheterization just before leaving for the operating room.

68. **Drainage of Seminal Vesicles.**—Operative drainage of the vesicles for chronic focal infection, Squier says, has produced in a series of 50 cases a cure in 68 per cent. of all cases operated, improvement in 24 per cent., and no improvement in 8 per cent. The largest percentage of cure has been among those cases in which arthritic symptoms predominated: Cured, 76.4 per cent.; improved, 23.6 per cent. His experience with drainage of the seminal vesicles in patients suffering from arthropathies seems to indicate that the amount of relief to be expected in any given case will largely depend on the length of time elapsed between the acute urethral infection, the appearance of the joint lesion, and the operation for drainage. After ankylosis from fibrous or bony changes has taken place, operation upon the vesicles will offer but little except toward arresting further joint destruction.

Northwest Medicine, Seattle, Wash.

February, VII, No. 2, pp. 35-68

76 Repair of Bone Defects by Use of Autogenous Grafts. D. B. Phemister, Chicago.
77 Recent Advances in Orthopedic Surgery. E. A. Rich, Tacoma., and C. R. McClure, Portland, Ore.
78 Red Eye. A. R. Irvine, Salt Lake City.
79 Cases of Blindness. L. Purgmire, Ogden, Utah.
80 Extra-Ocular Muscles. S. D. Brazeau, Spokane.
81 Irritability of Bladder in Women. H. W. Howard, Portland, Ore.
82 Early Day Cases of Obstetrics. A. C. Ewing, Salt Lake City.

Oklahoma State Medical Association Journal, Muskogee

February, VII, No. 9, pp. 271-307

83 Pathology and Diagnosis of Diseases of Gall-Bladder and Ducts. C. E. Clymer, Oklahoma City.
84 Causes and Treatment of Postoperative Shock. P. P. Nesbitt, Muskogee.
85 Goiter. R. M. Howard, Oklahoma City.
86 Diagnosis of Pneumonia. L. S. Willour, McAlester.
87 Nitrous Oxid Oxygen Anesthesia. T. C. Burns, Oklahoma City.
88 Nasal Obstruction in Children. C. B. Barker, Guthrie.
89 Operative Treatment of Gonorrheal Epididymitis. L. F. Watson, Oklahoma City.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

February, XX, No. 2, pp. 63-114

90 Stone in Right Ureter Simulating Appendicitis. Report of Cases. A. M. Willis, Richmond.
91 Responsibility for Morbidity and Mortality of Appendicitis. F. H. Smith, Abingdon.
92 Methods of Finding Early Cases of Tuberculosis. B. L. Taliaferro, Catawba.
93 Spartein Sulphate and Dr. Pettey. L. B. Wiggs, Richmond.
94 Hospital Architecture. J. A. Johnston, Richmond.

Ophthalmic Record, Chicago

February, XXIV, No. 2, pp. 55-108

95 Scleral Puncture for Expulsive Subchorioidal Hemorrhage Following Sclerostomy—Scleral Puncture for Postoperative Separation of Chorioid. F. H. Verhoeff, Boston.
96 Influence of Heredity in Development of Strabismus. W. Reber, Philadelphia.
97 New Eye Speculum. A. S. Green and L. D. Green, San Francisco.
98 Case of Retinal Detachment. T. H. Curtin, New York.
99 Conservative Treatment of Penetrating Wounds of Eyeball. A. E. Bulson, Jr., Fort Wayne, Ind.
100 Operative Treatment of Acute Glaucoma. G. H. Burnham, Toronto, Canada.
101 Spectacle Frame for Tennis Players and Farmers. H. Gifford, Omaha.

Surgery, Gynecology and Obstetrics, Chicago

February, XX, No. 2, pp. 129-252

102 *Treatment of Osteomyelitis. C. C. Simmons, Boston.
103 *Intestinal Stasis. B. Moynihan, Leeds, England.
104 *Treatment of Second Degree of Pelvic Contraction. H. Jellett, Dublin, Ireland.
105 Experience with Resection of Esophagus for Carcinoma. W. Meyer, New York.
106 *Plastic Operations on Stomach. C. Beck, Chicago.
107 Study of Twenty-Five Tabetic Bladders. I. S. Koll, Chicago.
108 *Intussusception. W. R. Cubbins, Chicago.
109 Fracture of Spine of Tibia. Report of Case. J. J. Kurlander, Cleveland.
110 Temperature Range After Supravaginal Hysterectomy for Myofibromata. I. S. Stone, Washington, D. C.
111 Gross Anatomy of Human Prostate and Contiguous Structures. O. S. Lowsley, New York.
112 *Nerve-Blocking. M. L. Harris, Chicago.
113 Pathology and Treatment of Acute Infectious (Metastatic) Arthritis. F. C. Zapffe, Chicago.
114 *Acute Hemorrhagic Pancreatitis. Report of Eight Cases. W. Linder, Brooklyn.
115 Treatment of Acute Infections. F. G. Dyas, Chicago.
116 Weak Feet. W. B. Owen, Louisville, Ky.
117 *Silence of Renal Tuberculosis. G. S. Gordon, Vancouver, B. C.
118 Dermoids of Kidney. J. F. Baldwin, Columbus, O.
119 Series of Abdominal Cesarean Sections Performed under Local Anesthesia. J. C. Webster, Chicago.
120 *New Operation for Stricture of Rectum or Sigmoid. J. Wiener, New York.
121 Butterfly Retractor in Operations on Gall-Ducts. F. Reder, St. Louis.
122 *New Method of Lateral (Side-To-Side) Intestinal Anastomosis. A. L. Soresi, New York.
123 *Treatment of Undescended Testis. J. A. Wolfer, Chicago.
124 Subperiosteal Osteotomy of Os Calcis for Pes Calcaneus. Report of Two Cases. W. C. Campbell, Memphis, Tenn.
125 Wire Splint in Early Treatment of Congenital Club-Foot. A. J. Dalton, St. Joseph.
126 Care and Feeding of Incubator Babies. C. G. Grulee, Chicago.
127 *Case of Genito-Urinary Tuberculosis. R. Anderson, Salt Lake City.
128 Urinary Incontinence in Women. R. Cadwallader, San Francisco.
129 Treatment of Purulent Streptococcic Cerebrospinal Meningitis. W. S. Bryant, New York.
130 *How to Sharpen a Scalpel. V. Berry, Okmulgee, Okla.

102. **Treatment of Osteomyelitis.**—In 72 of the 82 cases analyzed by Simmons the age at onset was under 20 and in 58, or 70.8 per cent., under 15. If the diagnosis is made at the onset of the disease and the bone operated on at once, the prognosis is good except in the most severe cases of staphylococcic septicemia. This septicemia can evidently exist in what may be termed a latent state for a long time. In children with pain in a limb and evidence of toxemia, always consider osteomyelitis. Operate early even if the symptoms are rather vague. If the diagnosis is incorrect practically no harm is done while if correct a great deal of suffering may be avoided. In acute cases, open to medulla and pack the wound. Prognosis good. The treatment and prognosis varies of necessity somewhat in these early cases but in general the earlier the operation the better the prognosis. In cases in which the bone destruction has taken place, seen less than three months after the onset of the disease, perform subperiosteal resection when possible. Prognosis good.

In chronic cases of bone abscess of less than one year's duration, drain and pack. Prognosis good. In chronic cases with bone destruction of less than one year's duration, remove sequestrum and pack. Prognosis good. In old chronic cases, either with bone destruction or of the bone-abscess type, remove necrotic areas and drain. Try to obliterate the cavity with flaps of living tissue. If this cannot be done either use bone wax, pack or sterilize the cavity, allow it to fill with blood clot, and close without drainage. The prognosis, if the cavity can be obliterated, is fair, otherwise poor. The treatment when such bones as the pelvis are involved is unsatisfactory and the prognosis problematical. When in old chronic cases the whole shaft of a long bone is badly diseased the possibility of resection of the entire shaft with bone transplantation should be considered before amputation is resorted to.

103. **Intestinal Stasis.**—The victim of what Moynihan calls "Lane's disease" is easily recognized, and the symptoms are caused to disappear by appropriate surgical treatment. The patient is generally a woman of unhealthy aspect and attenuated figure. She is lean, cadaverous, flat-chested, and she has a sour breath and cold and clammy hands. The skin is harsh and of an earthy color and bears many crops of pimples; its secretion is apt to be distressingly noticeable. She makes complaint of "indigestion," pain after meals, flatulence, and inveterate and incoercible constipation. The abdominal muscles lack bulk and tone. They are flabby and flaccid, and all the viscera which they should hold up are fallen in greater or less degree. Mentally, there is often

a complete absence of the joy of life; the patient is a morose, querulous, and often suspicious and introspective person. These attributes are rarely all present together, but so many of them may coexist as to enable a distinct type of patient to be recognized. In the very obvious cases of this kind, Moynihan does not think the mild measures that can often usefully be employed for the novice—massage, abdominal exercises, and the unrestricted use of paraffin—are really of any value. These sufferers are properly cases for surgical treatment. The colon should be excised in whole or in part. In some, perhaps, ileosigmoidostomy may be done; but in every case, with one exception, in his own series there has been some regurgitation of the intestinal contents upward along the descending colon to the cecum. The stasis then is worse than before, for a mass of fecal material that is never wholly dislodged is palpable at all times.

Personally, Moynihan believes that nothing short of colectomy offers a substantial chance of cure. The part of the gut that needs removal is he thinks, the last part of the ileum, the cecum, and the ascending colon. Accordingly, in such patients who need surgery he prefers to do Friedrich's operation of resection of these parts of the bowel. The evidence at the moment available allows us to say that intestinal stasis does seem to stand in a causal relationship toward some cases of chronic joint affections, and that such cases exhibit a marked and instantaneous delay or even cessation in the destructive processes, after operation on the bowel and that a complete recovery of the joint ultimately occurs.

104. **Treatment of Second Degree of Pelvic Contraction.**—As to the treatment of the second degree of pelvic contraction, pubiotomy is Jellett's operation of choice, unless there are special circumstances in the case or special complications present. He says that pubiotomy is especially indicated in the young multipara, because of the effect of the operation on subsequent pregnancies, and because owing to previous labor, the vaginal canal is dilated and lacerations are unlikely to occur. On the other hand, cesarean section is more suitable in the elderly primipara, because vaginal laceration is more likely to occur, and because it is unnecessary in her to take account of future pregnancies. Premature labor is only indicated under special conditions which render either of the foregoing operations impossible or inadmissible. Craniotomy is only permissible when the child is dead.

106. **Plastic Operations on Stomach.**—Beck records the following experiments: 1. The plastic formation of a new pylorus by a flap. The results operatively were good. 2. Implantation of the small intestine in place of resected pylorus. The fluoroscopic examination proved the absolutely good function of the implanted intestine and the examination of the specimen of the dog killed after weeks showed remarkable changes in epithelial structure, the epithelium of the jejunum growing similar to that of the stomach. 3. The use of an intestinal patch for the stomach defect in the small curvature. The defect healed beautifully and the dogs did well. 4. Resection of large part of the front wall of the stomach and filling of the defect with omentum only, without stitching the wall. All the dogs survived. Even a few days after the operation they were lively and ate well and the examination after even as short a time as one week, surely after five to six weeks, showed that the defect had dwindled to a small point and the omentum covered it up on the outside, forming a defense wall against perforation. 5. Excisions of portions of the stomach and implantation of neighboring flaps of the stomach, according to the well-known laws of plastic flaps. These experiments were all satisfactory.

108. **Intussusception.**—The anatomic condition that has attracted Cubbins' attention the most is the length of the mesentery of the terminal ileum and the fact that the descending colon in these cases also possesses a distinct mesentery.

In order to avoid recurrence of the intussusception Cubbins has used the following method: The ileum is brought parallel to the ascending colon and sutured to it with three to five catgut sutures. The cecum is fixed in the iliac fossa in some cases with another suture. The fact that as the two bowels are parallel and cannot intussuscept will be at once evident. The long mesentery of these bowels allows them to assume a horizontal position in the belly, and we therefore need not consider a kinking of the ileum.

112. Abstracted in The Journal, June 27, 1914, p. 2047.

114. **Acute Hemorrhagic Pancreatitis.**—A positive diagnosis of acute hemorrhagic pancreatitis cannot be made with absolute certainty, since we still lack a distinct pathognomonic sign for this disease. Laboratory aids, such as the Cammidge reaction and the Wohlgemuth diastase blood test are of no value in this condition. The most striking feature of this condition, clinically, is the evidence of peritoneal disturbance in the upper abdomen, the so-called "acute abdomen" which all surgeons agree is an indication for surgical interference; and acute hemorrhagic pancreatitis should always be borne in mind in such cases. When finding the peculiar odorless serosanguineous fluid and the small flecks of fat necrosis, it is direct and undoubted evidence of acute hemorrhagic pancreatitis. The best results are obtained in cases in which operation precedes the stage of necrosis of pus formation. Hence, early surgical intervention in all such cases will be rewarded by more frequent recoveries.

Linder's observation of the intense cyanosis of the distended small intestines, cyanosis, with the peculiar granular or gritty feel of the thickened great omentum, has helped him in many cases to recognize the condition at operation, and look to the pancreas at once as the cause of the trouble. This is of special value in cases of patients operated on for supposed intestinal obstruction. The abdomen opened, the condition should be looked for and recognized quickly. Then prompt and efficient drainage should be instituted, causing the patient as little shock as is compatible with good surgical technic.

117. **Silence of Renal Tuberculosis.**—Renal tuberculosis gives no local symptoms in a large percentage of cases. Its first manifestation may be hematuria or symptoms of its spread to the bladder. Gordon states that a history of gonorrhea or the finding of colon bacillus, staphylococci, or other pathologic micro-organisms in the urine in no way excludes the concurrent presence of tubercle bacilli. In fact, renal tuberculosis predisposes the urinary tract to other infections and the tubercle bacillus is usually reinforced by such allies before it has progressed far in its invasion. It is usually unilateral at first, when the whole focus can be removed and the patient cured, but in time may become bilateral or miliary when the case is hopeless.

120. **New Operation for Stricture of Rectum and Sigmoid.**—By forcing the bowel downward toward the anus from within the abdomen, while the assistant steadied the bougie from outside the anus Wiener was able to overcome the stricture. The rectum was "milked" over the bougie at the site of the stricture until the largest Wales bougie lay in the rectum above the former stricture. The bougie was allowed to remain in place and the abdomen was closed without drainage. Eighteen hours after operation the bougie was removed on account of pain. Convalescence was uninterrupted.

122. **New Method of Lateral Intestinal Anastomosis.**—The technic of Soresi's method is as follows: After the usual preparation of the intestines the two stumps which are to be anastomosed are brought in contact, the cut edges in opposite directions. A strand of any suture material, preferably silk, about 40 cm. long, on which two round needles have been threaded (the choice of the needles depends on the operator—the author always uses plain seamstress's needles No. 7), is used for a seroserous suture in the following manner: The suture is started midway between the two cut edges of the intestine, about 2 mm. from the attachment of the mesentery. One of the needles is used to start the suture and the stitches are taken toward one of the cut edges up to a distance of approximately 3 mm. from the same.

A like procedure is followed with the other needle in the opposite direction. The two ends of the thread are gently pulled apart, but are held parallel with the suture line to insure a perfect approximation of the serous surfaces. The ends are dropped temporarily, to be used later. With a pair of scissors the two stumps of the intestines are cut longitudinally and parallel to the seroserous suture, approximately 3 mm. from it. Two needles are threaded with one strand of chromic or iodized catgut No. 1. A suture intersecting the three coats is started just above opposite the joint of the beginning of the seroserous suture, and is continued completely around half way with each needle, until the intestine is completely closed. The two ends of the catgut are then tied with two knots—the first one being a surgical one—and the catgut is cut short. The two needles which had been used to start the seroserous suture are picked up and the two ends of the silk again pulled gently as described above. The suture is continued half way with each needle, until the two needles meet when the thread is tied and cut close. The completed anastomosis appears more like an end-to-end than a side-to-side anastomosis.

123. **Treatment of Undescended Testis.**—The inguinal canal is opened by Wölfer as in the Bassini operation for the cure of inguinal hernia. A pocket is then prepared in the scrotum by stretching the parts with the fingers and packing a large piece of gauze into this fossa, leaving it in position until the testis is prepared. The testis is then found. Usually it can be delivered by picking up and freeing the structures emitting from the internal ring—the remnant of the gubernaculum ligament—using gentle traction on them and pressure on the abdomen just above the inguinal region. The cord is then freed, separating the vas from the rest of the structures. The deep epigastric vessels, usually two veins and the artery, are freed by blunt dissection and held out of the way with a blunt hook. The transversalis fascia is then cut down to the pubes. The testis is drawn behind the deep epigastric vessels. The vas will now follow down behind Poupart's ligament. The structures which extend upward and outward are freed from the peritoneum and dealt with as in the Davison operation—pushed behind the bulge of the peritoneum. When by posterior displacement of the spermatic structures, sufficient length has been given the cord to allow the testis to be placed in the lower part of the scrotum, the gauze pack is removed from the scrotal fossa and the testis placed in the pocket prepared for it. In doing this operation three times, Wolfer has not found it necessary to fasten the testis in the scrotum aside from placing a catgut suture from the periosteum and tissues over the pubic spine to the inner border of Poupart's ligament; in other words, the testis is simply retained in the scrotum by obstructing the scrotal outlet.

127. **Case of Genito-Urinary Tuberculosis.**—In Anderson's case in freeing a growth from the common iliac vein, the vein tore and this necessitated ligation in two places, above and below the point of rupture. In closing the abdomen there was a marked venous oozing, which showed how readily the collateral circulation was established. So far as he has been able to search the literature, Anderson has never found a case reported in which the common iliac vein was ligated.

130. **How to Sharpen a Scalpel.**—A quantity of clean beef fat is rendered to common tallow, strained through fine cloth or canton flannel, and while in the melted state, carborundum powder, No. 1 F is stirred into the melted tallow to make a stiff paste. The mixture is then allowed to cool. To use the paste, simply spread freely on a smooth strop, lay the strop on a table, and draw the scalpel back and forth at right angles not diagonally. This absolutely solves the problem of a keen-edged knife. In cold weather if the paste is too stiff, add a drop or two of olive oil to the paste on the strop. To get an extremely smooth and keen edge to finish the sharpening a paste can be used of No. 2 F carborundum powder mixed in tallow.

West Virginia Medical Journal, Wheeling

February, IX, No. 8, pp. 255-290

131 Medical Experiences in Balkans. C. S. Ford, U. S. Army.
132 Penetrating Wounds of Abdomen and Thorax. A. P. Butt, Davis.
133 Case of Frontal and Maxillary Sinusitis. T. E. Peery, Bluefield.
134 Morphin Heredity. J. W. Williams, Richmond.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Roentgen Ray, London

February, XIX, No. 9, pp. 307-338

1 Roentgen Ray Work at First Western Base Hospital. C. T. Holland.

British Medical Journal, London

January 30, I, No. 2822, pp. 189-232

2 *Cerebrospinal Fever in Camps and Barracks. W. Osler.
3 Surgical Experiences at First Southern General Hospital, Birmingham. G. Barling.
4 Diagnosis and Treatment of Parenchymatous Syphilis. F. W. Mott.
5 Spread of Asiatic Schistosomiasis. R. T. Leiper and E. L. Atkinson.
6 Alleged Responsibility of Medical Profession for Reintroduction of Rum Ration into British Army. V. Horsley.
7 Baths for Wounded Soldiers. R. F. Fox.

February 6, No. 2823, pp. 233-276

8 *Employment of Ether in Surgical Therapeusis. H. F. Waterhouse.
9 Action of Ether on Certain Microorganisms. W. W. C. Topley.
10 Biochemistry of Immunity Reactions. C. H. Browning.
11 Therapeutics of Organic Extracts. D. N. Paton, O. Grunbaum and A. Hertz.
12 Shrapnel Wound of Spine, with Exceptionally Low Temperature. M. W. B. Oliver and F. B. Winfield.
13 Successful Method for Extermination of Vermin Infesting Troops. S. M. Copeman.

2. **Cerebrospinal Fever in Camps and Barracks.**—In the outbreaks among the troops, Osler says, there have always been three strong predisposing factors: Overcrowding in camps or barracks, the cold winter weather, and muscular overexertion among young recruits. Two of these conditions have prevailed during the past three months. The weather has been atrocious and an enormous number of young recruits have been in active training. There has not been special overcrowding, but a great many men have been in tents, in the ordinary regulation form of which, nine men live in close contact, and he can testify from examination that the ventilation is not always good. It is this very intimate contact that seems to favor the communication of the disease. With fresh air, sunlight, and scrupulous personal cleanliness, the epidemics, as a rule, quickly subside.

Osler adds that stringent preventive measures have been taken—isolation of the sick, systematic examination of the contacts, and the disinfection of the nasopharynx of any carriers, which should suffice to limit the outbreaks. In a circular issued a year or two ago in the French army, Vincent recommends the following mixture, to be used five or six times a day as an inhalation: Iodin 12 gm., guaiacol 2 gm., thymol 35 centigrams, alcohol 200 gm., potassium iodid 6 gm. Disinfection of the pharynx is carried out by swabbing with a 3 to 5 per cent. solution of glycerin and iodin. In the recent Texas epidemic Sophian found that a spray composed of 1 per cent. hydrogen peroxid and 9 per cent. argyrol, destroyed the meningococcus quicker than any other measure.

8. **Employment of Ether in Surgical Therapeusis.**—The conditions in which Waterhouse uses ether as an antiseptic are the following: 1. Psoas and other tuberculous abscesses in which, after incision and flushing with normal saline solution, ether (1½ ounces was the maximum employed) was introduced into the abscess cavity and the incision sewed up without drainage. 2. Abscesses, the result of appendicitis, in which, after incision of the abscess, the margins of the wound were held open with retractors, and 1 ounce of ether was allowed to boil away in the abscess cavity. 3. Cases of gangrene or perforation of the appendix, in which the neighboring inflamed coils of intestine were washed with ether. 4. Compound fractures: In these cases the wound in the soft parts, the fractured ends of the bones and the torn medulla were freely washed with ether. In two of such cases the fracture was plated, with excellent result. 5. Carbuncles, in which ether was injected not only into the slough, but 3 or 4 drops were also injected at intervals of about 1 inch, into the subcutaneous tissue just outside the carbuncle.

6. Tuberculous glands: Ether—3 or 4 drops—was injected by means of a hypodermic syringe into every gland that was palpably enlarged. 7. Tuberculous synovitis of joints, especially the knee, wrist, elbow and ankle. In all these cases Bier's passive congestion was also employed. Here the best results were obtained in examples of tuberculous hydrops, first described by the author's old teacher, Professor König. 8. Septic wounds of the soft parts, in which ether surpasses, in Waterhouse's opinion, all other antiseptics. 9. Sinuses, which were filled with ether. 10. Cases of pyogenic osteomyelitis in which, after a gutter had been cut in the bone and all the infected medulla removed, the cavity was filled with ether, the incision in the soft parts being usually left unsutured. 11. Suppurating buboes, especially those due to chancroid (Ducrey's bacillus). Ether is also a perfect application to the chancroid itself. 12. In cases in which an incision had to be made through skin in a part in which asepsis is difficult to maintain—for example, in axilla or scrotum, or when the patient was very stout—wash the entire wound with ether prior to closing it.

Indian Medical Gazette, Calcutta

January, L, No. 1, pp. 1-40

14 Emetin in Cholera. L. Rogers.
15 Five Flagellate Trichomonas Parasitic in Man. G. C. Chatterjee.
16 Studies in Malaria. H. Stott.
17 Dysentery. F. C. McCombie.
18 Unusual Case of Siamese Twins. C. W. O'Brien.
19 Death after Salvarsan. A. Neve.
20 Right Scrotal Fecal Fistula. W. Vost.

Journal of Tropical Medicine and Hygiene, London

February 1, XVIII, No. 3, pp. 25-36

21 Importance of Tertiary Yaws. R. Howard.

Lancet, London

February 6, I, No. 4771, 265-308

22 Immunity Against Infectious Disease with Special Reference to Antityphoid Inoculation. E. J. McWeeney.
23 *Embalmment of Septic Wounds. L. Mencière.
24 Prevention of Frost-Bites. S. Delépine.
25 Radium and Its Efficacy in Cancer of Vulva. Report of Case. T. Oliver.
26 Successful Method for Extermination of Vermin Infesting Troops. S. M. Copeman.
27 *Simple Method of Administering Drugs under War and Other Strenuous Conditions. F. W. Tunnicliffe.
28 Treatment of Persistent Diphtheria Infection by Means of Diphtheria Endotoxin. R. T. Hewlett.
29 Roentgen Ray Director for Removal of Foreign Bodies in Tissues. W. I. Bruce.

23. **Embalmment of Septic Wounds.**—The following is the treatment recommended by Mencière. Successive washings of the wound with the three antiseptics after atypical operations when, as often, necessary. Embalmment of the wound (permanent dressing) with gauze wicks soaked in the solution, the formula of which will be found below. For three or four days wash again with the three antiseptics—mercuric chlorid, 1:1,000; phenol, 1:40; hydrogen peroxid, 1:3—after which, remembering the susceptibility of the cells, only wash with hydrogen peroxid 1:3 or 1:4 and again embalm. Repeat the dressing daily. Mencière says it is a mistake to advise that the dressings should not be removed. A wound which is closing up necessitates an intense phagocytosis, an irruption of white cells which clog the wound and which form a liquid which it is always best to evacuate in order to avoid resorption. It is for this reason, too, that one must not close the wounds, but drain them freely with glass drains. Embalmment of wounds thus, following the formula given further on, is a powerful antiseptic deadly to microbes but sparing the cells, calling forth the phagocytes and constituting a stimulant to the wound. It is the means with which Mencière has succeeded best after having tried nearly everything—formol, salicylic acid, tincture of iodin and iodin vapor itself.

He does not decry tincture of iodin employed for a first dressing, but this method cannot be repeated, for if it kills the microbes it also causes necrosis of cells and leaves a surface which is an excellent culture medium, but not a good defense. The Mencière formula is as follows: Solution *A*, iodoform, 10 gm.; guaiacol, 10 gm.; eucalyptol, 10 gm.; balsam of Peru, 30 gm.; ether, 100 gm., to be used to soak the wicks of gauze or to be injected into the sinuses with a Roux's syringe. If hydrogen peroxid is lacking, or if one is prodigal, solution *B* may be used for washing the wound before embalmment. Solution *B* differs from *A* only in the quantity of ether, which is 1,000 gm. instead of the 100 of solution *A*. In case of idiosyncrasy or intolerance after a few days treatment (which is exceptional) omit the iodoform from the formula.

27. **Administering Drugs in War.**—The method which Tunnicliffe has employed is to prescribe the drug to be given in a semisolid aromatic base and to close the mass in a collapsible tube such as is generally used to contain remedies for external application. By varying the composition of the base in glycerin, bismuth base, agar-agar, etc., all climatic conditions can be allowed for. With a given base the weight of a given length of jet is practically constant, and by this means an accurate dosage can be obtained. The medicinal creams the author has had made so far all have the same dose, namely, 1 linear inch of the exuded jet. An inch can easily be measured against the last joint of the thumb and can practically always be accurately guessed. As a constituent of the base Tunnicliffe prescribes some aromatic substance which promotes salivation and thus reflexly stimulates swallowing. He has prepared, for instance, a chlorodyne cream containing up to 30 minims to the inch and a morphin cream containing up to 2 grains to the inch. The inch of jet can be severed from the nozzle of the tube against the patient's teeth, or if he is more or less unconscious it can be dabbed off on the back of his tongue.

Archives Mensuelles d'Obstét. et de Gyn., Paris

September, III, No. 9, pp. 97-144

30 Hypophysis Extract in Obstetrics. K. A. Esbensen.

Bulletin de l'Académie de Médecine, Paris

January 12, LXXII, No. 2, pp. 47-62

31 *Seton Treatment of Path of Bullet Passing through Limb. F. Jousseaume and R. R. Blanchard.
32 *Passive Ischemia in Treatment of Frozen Limbs. (Traitement des gelures par la methode bio-kinétique de L. Jacquet.) F. Debat.
33 Prophylaxis of Tetanus. Sieur.
34 Reading without Glasses when Power of Accommodation is Defective. (La lecture sans lunette pour certains presbytes.) Lesage.
35 Foreign Substances in Deep Wounds may Float out on Foam of Hydrogen Dioxid. P. Lacroix.
36 Circumscribed Lumbar-Sacral Edema Early Sign of Deep Chronic Peritonitis. E. Lenoble.

January 19, No. 3, pp. 63-124

37 *Wounds of Nerves. (Sur les traumatismes des nerfs par les projectiles et les opérations qu'ils réclament.) E. Delorme.
38 Total Deafness from Explosion of Shell. (Des surdités totales par éclatement d'obus.) Lannois and Chavanne.
39 *Treatment of Gangrenous Wounds in War. E. Quénu.
40 Colloidal Gold in Treatment of Wounds in War. R. Belbèze.
41 Treatment of Ocular Tuberculosis with Tuberculins plus Antituberculosis Serum. A. Darier.

31. **Seton for Path of Bullet.**—Jousseaume here relates an old experience of his. He ran the end of a roll of tape through the passage tunneled through a patient's shoulder by a bullet. The roll of tape was kept protected, and the outer end was pulled farther through each day and cut off. The tape brought with it the pus and foreign substances in the wound and recovery was soon complete.

32. **Passive Ischemia in Prophylaxis and Treatment of Freezing Injuries.**—Debat has witnessed remarkable benefit from the measure described in these columns Feb. 13, 1915, p. 622, abst. 44. It is known as Jacquet's biokinetic method, and it wards off threatened freezing and helps to cure the consequences when the limb has been frozen. The intense vasoconstriction induced by the cold is counteracted by massage and exercise, the patient lying on his back and raising the leg perpendicularly, holding it in this position with both hands. The toes and ankle are worked vigorously and fast. This is kept up for five minutes and repeated every hour.

In the intervals the man reclines with the foot slightly elevated.

37. **Operative Treatment of Bullet or Shell Wounds of Nerves.**—Delorme has applied in ninety cases various operative measures, as he describes in detail with twenty illustrations. He declares that the suture of certain nerves is as delicate a procedure as the making of jewelry, but that few surgical measures give such gratifying results. Proper operative treatment requires the cooperation of the surgeon, a neurologist, an expert in electrotherapy and a physician skilled in histologic technic. He comments on the destructive lesions from bullet and shell injuries, so different from the clean cut of a stab wound. In treatment he seeks to cut away all the fibrous tissue interrupting the continuity of the nerve and thus produce a linear surgical cicatrix, loosening the nerve above and below far enough to permit coaptation of the stumps when the limb is placed in an attitude which relaxes the nerve. If the gap is too long to be thus bridged, a plastic operation should be done on the nerve. In cutting away the interposing cicatricial tissue he makes one transverse section after another, until sound tissue is reached, thus cutting off narrow slices and examining each in turn for sound nerve fibers. The various types of such injuries are discussed in turn and the special treatment for each. The immediate results have been good in his cases and there has been partial return of sensibility in a number; the interval since has been too brief for estimate of the ultimate outcome. The injury of the nerve had entailed persisting paralysis in all, rebellious to all medical measures, and there was already considerable atrophy.

39. **Prophylaxis of Gangrene.**—Quénu remarks that the conviction is becoming general that ample opening up of the wound is the main factor in warding off and treating gangrene in wounds. The aim is to permit free access of air to every part, not leaving a chink or crevice anywhere to serve as a nest for anaerobic germs. Hydrogen peroxid or cinchona powder are useful adjuvants and may prove all that is needed for superficial tunnels and small gangrenous wounds. For severe wounds, however, he scorches the tissues with air heated to 700 or 800 C. (1292 to 1472 F.). This transforms an exuding into a dry gangrene, and in several years' use of the apparatus he has found it of unfailing benefit. Since the war came on he has used it in twenty severe cases of gangrene from shrapnel wounds, and all his patients recovered except one who had gangrenous wounds in shoulder and hip and whose leg was completely gangrenous. The superheated air requires general anesthesia for its application, and it takes from fifteen to thirty minutes to do its work. The eschar that forms is very thin, as he has established by experimental research that the hot air does not char below the surface.

Presse Médicale, Paris

January 21, XXIII, No. 3, pp. 17-24

42 Access to the Radial Nerve. (La recherche du nerf radial au bras.) A. Gosset, J. Pascalis and J. Charrier.
43 Prophylaxis of Typhus and Relapsing Fever. C. Nicolle and E. Conseil.
44 Treatment of Freezing Injuries. (Traitement des gelures par la méthode biokinétique de L. Jacquet.) A. Courcoux. (Les gelures et la gangrène de congélation.) L. Imbert.
45 Treatment and Prognosis of Tetanus. Nigay.
46 Treatment of Gas Gangrene in English Field Hospitals. G.-V. Legros.

January 28, No. 4, pp. 25-32

47 Salvarsan in Treatment of Gangrene; Seven Cases. (Traitement des gangrènes par l'arsénobenzol.) G. Lacapère and C. Lenormant.
48 Immobilization for Compound Fractures. Vignard.
49 Improved Arrangement for Imaginary Planes for the Topography of the Skull. (Lignes de repère pour les principales déterminations de topographie craniocérébrale.) Ferron.

Berliner klinische Wochenschrift, Berlin

January 18, LII, No. 3, pp. 45-68

50 Gunshot Wounds of Blood Vessels. (Schussverletzungen der Blutgefasse.) F. Honigmann.
51 Food of the Populace during War Conditions. (Die Anpassung der deutschen Volksernährung an die Kriegslage.) C. Oppenheimer. Commenced in No. 2.
52 Agglutination Test Positive after Antityphoid Inoculation. (Bedeutung der Widal'schen Reaktion bei typhusgeimpften Soldaten.) L. Dünner.
53 *Pathology and Treatment of Pyelitis. C. Posner.

January 25, No. 4, pp. 69-96

54 Accumulation of Bile in Peritoneal Cavity after Bullet Pierces Liver. (Cholaskos nach Schuss durch die Leber.) L. Landau.
55 *Resection of Chest Wall for Tuberculosis and Bronchiectasia. (Extrapleurale Thorakoplastik.) W. Zinn and R. Mühsam. Commenced in No. 3.
56 Action of Human Serum on Trypanosomes. F. Rosenthal and E. Kleemann.
57 Pulmonary Tuberculosis with Cavities in Infants. (Cavernöse Lungentuberkulose beim Säugling.) H. Bergmann.
58 Venereal Disease in the Army. (Geschlechtsleben und Geschlechtskrankheiten in den Heeren, im Kriege und Frieden.) K. Touton. Commenced in No. 1.

53. **Pyelitis.**—Posner comments on the comparatively recently established fact that the bacteria found in the diseased kidney pelvis are not exclusively those from the urinary passages below. This shows that the infection is not always of ascending but may be of blood-borne or metastatic origin, and this is of great importance for treatment. A true gonococcus pyelitis has scarcely ever been encountered; other germs are usually responsible for the inflammation, especially the colon bacillus. The blood-borne or metastatic origin of tuberculous processes in the kidneys has now been established beyond question, and the same must be accepted for the colon bacillus. C. Franke recently demonstrated an actual direct connection through the lymphatics between the colon and the right kidney which explains the preponderance of right pyelitis. The pediatrists have also recently called attention to the comparative frequency of bacteriuria following extreme constipation, while the lower urinary passages remain persistently normal. Bumm has recently reported a significant case; intestinal trouble developed after excessive ingestion of milk and pyelitis followed, both promptly subsiding as the milk was discontinued.

Posner believes that the pyelitis may be of ascending or of blood or lymph-borne origin, but regards the latter as more common. He has encountered cases in which the pyelitis dragged along for months or kept constantly recurring but healed promptly under daily rinsing out of the bladder with weak silver nitrate solution in addition to the usual general measures. The pyelitis may have been started by metastatic infection from the intestines, middle ear or other infectious process, but the pyelitis was kept alight by the secondary infection in the bladder and the muscular insufficiency on the part of the ureters. The stretching of the bladder in local treatment may by reflex action rouse the kidney pelvis to contract and thus expel its contents better. He relates a striking instance of this kind, showing the sequence of bowel trouble, pyelitis and, later, cystitis, and the cure of the chronically recurring pyelitis by treatment of the bladder alone. He mentions, parenthetically, the great benefit in some cases of pregnancy pyelitis, from systematic drainage of the kidney pelvis by catheterization of the ureter. Brongersma kept it up for 118 days, changing the catheter every eight or ten days, and thus enabling the pregnancy to be carried to term.

55. **Resection of Chest Wall in Treatment of Tuberculosis and Bronchiectasis.**—Zinn and Mühsam have had considerable experience with what they call extrapleural thoracoplastics, and here give an illustrated description of some of their seven surviving out of nine cases of empyema, and of the three surviving in the six bronchiectasis cases. The operation makes considerable demands on the patients' strength and there is much pain afterward. Sedatives to relieve this check the tendency to cough, and this in turn arrests expectoration and the stagnating secretions are liable to induce fever, especially in the bronchiectasis cases. The benefit finally realized, however, compensates, they declare, for all that has been gone through. The results with old empyema depend on the patient's recuperating powers, and hence the operation should not be delayed too long. In the five cases in which the operation was done to immobilize a tuberculous process in the lung, the results were most gratifying in four cases. The indications were for artificial

pneumothorax, but when adhesions prevent this, then the "extrapleural thoracoplastics" is the most available substitute for it, and frequently is followed by surprising improvement.

Deutsche medizinische Wochenschrift, Berlin

January 21, XLI, No. 4, pp. 93-120

59 The Food Supply and the Diet for the Sick. (Kriegsernährung und Krankendiät.) H. Strauss.
60 *Wounds of the Abdomen. (Bauchschüsse.) W. Carl.
61 Cicatricial Displacement of the Stomach. (Pylorusstenose und Magenverlagerung durch perigastritische Verwachsungen als Folge eines Schusses.) H. Silbergleit and A. Veith.
62 The Connective Tissue Changes in Plasma Cultures. (Die Bindegewebsveränderungen in Plasmakulturen.) P. Grawitz.
63 Cleansing Syringe for the Anus to Ward Off and Treat Hemorrhoids: the Anicure. M. v. Lenhossek.
64 Venereal Disease in the Army. (Zur Prophylaxe der Geschlechtskrankheiten im Felde.) K. Mendel and A. Buschke.
65 Treatment of Tetanus. Wienert.
66 *Atomizer for Applying Tincture of Iodin, etc. (Iodtinktur, Perubalsam und Wasserstoffsuperoxyd mittels Zerstäuber angewandt.) Dedolph.

January 28, No. 5, pp. 121-152

67 *Aneurysms from Wounds in War. (Ueber Kriegsaneurysmen.) A. Bier. Continued.
68 Wounds of the Esophagus. (Einige Kriegsverletzungen des Oesophagus.) O. Madelung.
69 *Metastasis of Furuncles. (Erfahrungen über Furunkelmetastasen.) B. Riedel. Commenced in No. 4.
70 Hemorrhage from Wounds. (Zur Behandlung der kriegschirurgischen Blutung.) Wiewiorowski.
71 The Question of Splints. (Zur Schienenfrage.) M. Fritz.
72 *Directions for Reducing Crippling to the Minimum. (12 Gebote zur Verhütung des Krüppeltums bei unseren Kriegs-Verwundeten.) A. Ritschl.
73 Oxaluria. L. Pincussohn.
74 *Urease Test for Urea in Small Amounts of Body Fluids. (Eine einfache Methode der quantitativen Harnstoffbestimmung in kleinen Blutmengen für die Zwecke der Nierendiagnostik.) A. Hahn.
75 Dysenteriform Intestinal Disease. (Ruhrähnliche Darmerkrankungen.) Alter.
76 Foreign Bodies Left Behind at Operations Viewed from Medicolegal Standpoint. (Das Zurückbleiben von Fremdkörpern bei der Operation und die Reichsgerichtsentscheidung vom 14. Juli, 1913.) E. Martin. Commenced in No. 4. (Die Verantwortlichkeit des Operateurs.) J. Kohler and Ebermayer.

60. **Abdominal Wounds.**—Carl writes from his experience at a base hospital at Königsberg. The journey from the battlefield takes at least twenty hours, so that abdominal wounds receive absolutely conservative treatment, morphin to keep the bowel quiet, and not a drop to eat or drink for two days or longer. The lips are repeatedly moistened and 1,500 or 2,000 c.c. of a saline infusion is given daily. If no fresh blood oozes through the anus, saline is given by proctoclysis several times a day. The patient is kept on the same litter without changing to a bed, and he is not allowed to get up for two weeks, no matter how well he feels. Heat to the abdomen seems to hasten the processes of repair. The head of the couch is raised so the slope is as steep as the patient can bear. If there is nausea or eructation, the stomach is rinsed out. Among the 48 patients treated on these principles, only 23 developed peritonitis; 14 per cent. are ready to return to the front, and 38.75 per cent. died. Necropsy in the 18 fatal cases showed that conditions were beyond repair if an operation had been attempted.

66. **Improved Technic for Sterilization with Tincture of Iodin.**—Dedolph applies the tincture of iodin with an atomizer. The spray penetrates into every crevice, the fingers are not stained, there is no loss of the drug as when it is applied on cotton which is then thrown away. Another advantage is that the patient is spared the pain of contact as the wound is not touched except by the spray. Sloping and low, hidden surfaces can be reached better by the spray than by fluid.

67. **War Aneurysms.**—Bier has operated in less than two months in forty-four cases of aneurysm following a gunshot injury of a blood vessel. The walls of the sac are formed of fascia or muscle and clotted blood, the blood still circulating in the cavity left in the center. Some of the men had severe pain in the limb, edema and contractions; others had little disturbance except that the limb tired easily. Hemorrhage and infection compelled operative treatment in some of the cases, and in all the outcome was most excellent. The hole in the artery was exposed and sutured after the blood had been expelled from the limb down to the aneurysm but not below. The minutest injuries of the vessels below then become apparent by oozing of blood and can be attended to. In only comparatively few cases was it necessary to ligate the artery above and below the aneurysm.

69. **Metastasis of Furuncles.**—Riedel has encountered five cases of fatal thrombophlebitis in robust men, the consequence of a furuncle in the face or side of the neck in front. Another patient, a woman of 23, succumbed to thrombophlebitis from an apparently harmless pimple on the inside of her nostril. A man died from thrombophlebitis set up by a felon in the thumb. Riedel has also repeatedly witnessed thrombophlebitis develop from some injury of the forearm or fingers. The thrombophlebitis in all the preceding cases developed rapidly, especially when the veins of the face were involved.

Metastasis from a furuncle is more common, and it develops slowly and insidiously. Weeks, months or years may elapse before the metastasis becomes apparent. In his 54 cases of metastasis from a furuncle, carbuncle or felon, 13 of the patients died, a larger percentage than in his thrombophlebitis cases. All the 54 patients were otherwise healthy. In 14 cases the metastasis involved the bone, and in 6 of these was near the original focus. In 2 cases the vertebrae just below the furuncle developed the metastasis. In 5 cases metastasis was in the femur although the furuncle had been at a distant point. Three died of the 8 children among the 14 patients in this bone group. This fatality proportion corresponds to his experience with osteomyelitis in general. Of the 40 patients with metastasis in the soft parts only one was a child. In 3 cases metastasis was in the brain and proved fatal; in other cases it was in the eyes, thyroid, lung, epididymis, or muscles, all with favorable outcome. In one case it was in the thymus and proved fatal; 5 of the 14 patients with metastasis in the perirenal fat tissue, died as did also one patient with metastasis in the shoulder following a furuncle at the back of the neck. One robust man of 38 succumbed to a brain abscess seven years after a felon with metastasis at the back of the neck. He had complained of left headache nearly constantly since. It had been diagnosed "neurasthenic neuralgia" until he developed fever. An abscess in the temporal region was evacuated and a deeper one was found at necropsy.

Riedel's conclusions from these experiences emphasize the importance of treatment of every furuncle, as its consequences are incalculable. Superficial furuncles can be treated conservatively, merely shaving off the outer skin and covering and dressing thick with a salve to soften up and help the casting off of the plug. If infiltration develops rapidly and there is much pain, he advocates a crucial incision down through the plug after spraying with ether. The ether spray is not effectual unless the blood is expelled from the region. Deep-seated furuncles should be incised without any delay, and carbuncles should be cut out entire under general anesthesia. Petrolatum is not a good salve for furuncles; it dries out too soon. He prefers a salve with some resin in it, especially ointment of elemi.

72. **The "Twelve Commandments in Regard to Prevention of Crippling."**—A set of rules has been placarded broadcast throughout the hospitals in Germany and at the front. They impress the facts that repose is harmful for both joints and muscles, making joints stiff and muscles weak and emaciated; that time, trouble and expense will be saved by striving to ward off all disturbances in motor functioning, and by insisting on prompt orthopedic or mechanical after-treatment if such becomes necessary. "4. Shorten as much as possible the period when the joint is kept still; have it exercised as soon as possible and change its angle frequently. Keep up the strength in the muscles menaced by the enforced repose, having massage and electricity applied early and systematically, with active exercises. 5. Remember that the extensor muscles deteriorate faster than the flexors; pay special attention to the deltoid muscle in the arm and the quadriceps in

the knee, for the arm and leg can not be used properly if the extensors are weakened. 6. In immobilizing, place the shoulder, elbow, wrist, fingers, knee and other joints in the position most favorable for their functional use later," as is described for each in turn.

"7. Do not allow the hand to droop from its own weight when the arm is in a sling, as this favors stiffness of the fingers and prevents grasping movements. 8. Leave the fingers exposed so they can be worked freely, and warn the patient to keep them continuously working vigorously to ward off stiffness. Save enough of the hand to grasp things with if possible, as there is no feeling in an artificial hand, and it is thus decidedly inferior to even a mutilated stump that can still grasp articles. 9. Stimulate the circulation by exercising the legs and by deep breathing even when the man is unable to be up, as stimulating the circulation has a beneficial action throughout the body, promoting nutritional processes and repair in general. 10. Get rid of extravasated blood by measures to promote absorption, etc., such as raising the limb, massage, heat, alternating hot and cold douches, as blood coagulating in the tissues keeps up a constant irritation, entailing adhesions and binding together the tissues in the region involved. When connective-tissue adhesions develop, there is no possibility of absorption later. Remember that the circulation of blood and lymph is most sluggish toward the ends of the limbs, so that artificial aid is particularly required for extravasated blood in these regions." The last "commandment" warns not to disregard the mechanical factors involved, "for our motor apparatus is a marvellous mechanical apparatus, and only those who understand the mechanism of a machine and are good mechanics are able to start a complicated mechanical apparatus to work again."

74. **Urease Test for Urea in Blood.**—Hahn says that further experience has confirmed the precision and reliability of the soy bean urease test, applied to the urine according to the Hahn-Saphra technic. He also describes a simple method for determining the presence of urea in the blood or effusions with the soy bean urease; the alkalinity is determined by the iodin test. With the technic described, reliable results are obtained with very small amounts of blood and other fluids. No special apparatus is required and the findings with the test give an instructive insight into the retention of nitrogen in the blood, and are a means of estimating the functional capacity of the kidneys. Hahn says that it is unnecessary to use a precipitate of the soy bean ferment. A mechanically cleansed and dried soy bean flour with the fat removed answers every purpose.

Medizinische Klinik, Berlin

January 17, XI, No. 3, pp. 61-88

77 *Treatment of Fracture with Walking Extension. (Erfahrungen über die Behandlung von Schussknochenbrüchen mit Distractionsklammerverbänden.) P. T. L. Hackenbruch (Wiesbaden).
78 Sympathetic Ophthalmia from War Wounds of the Eyes. (Augenverletzungen im Kriege und ihre Behandlung.) C. Adam.
79 *Bullet Removed from Pericardium; Recovery. (Schuss in den Herzbeutel.) Jenckel.
80 *Pathogenesis and Symptoms of Chlorosis. N. v. Jagic.
81 Soft Chancre Plus Ignored Syphilis. G. Quarelli and F. Negro.
82 Present Status of Abortion. (Zum gegenwärtigen Stande der Abortfrage.) O. Rupp. Commenced in No. 2.
83 Treatment of Freezing Injuries. (Erfrierungen.) O. Nordmann.

77. **Extension Braces for Fractures.**—The standard for each end of the long brace is fastened solidly in the plaster cast; then by turning a nut in the center of the brace the ends are pushed apart as far as is needed. The extension can thus be regulated at any moment and the brace and cast are made light enough so the patient can walk around while the fractured bone is knitting together again, the ends held in proper place by the stretching of the segment of the limb. The article has eighteen illustrations showing the application of the brace to the arm, ankle, thigh and leg, and the correction of the displacement of the long bones realized with it. The joints above and below are left exposed to permit normal use of the limb. From almost the first the limb can be moved actively without pain, so that men with badly shattered long bones thus are able to be up and about. In treatment of the wounds in war the *Distractionsklammer* has proved remarkably convenient and efficient, surpassing Hackenbruch's highest anticipations.

79. **Bullet in the Pericardium.**—The young man had been shot in the second left interspace and had hemoptysis for a few days but there was no fever for nearly six weeks, merely signs of effusion in the pericardium. The operation the sixth week, when the temperature ran up, released a large amount of the sterile, blood-stained effusion and, when the trunk was raised, the bullet dropped down from where it had been lying on the right auricle. The pericardium was rinsed out with saline and some saline was left in it to prevent adhesions after suturing. Recovery was prompt. The heart had had to work for so many weeks hampered by the bullet, that slight hypertrophy and dilatation were left.

80. **Chlorosis.**—Von Jagic agrees with those who think that the basis of chlorosis is some constitutional anomaly analogous to the status hypoplasticus or lymphaticus. Girls without this constitutional predisposition may become anemic, debilitated, tuberculous or may starve, but they do not develop chlorosis. It is encountered as well among the well-to-do as in the working classes, but it is not so common as generally assumed, many cases being erroneously so labeled. This term should be restricted to true chlorosis which is a malady resulting from disturbances in the internal secretions of the genital organs and entails disturbances in blood production and especially in production of hemoglobin. It demonstrates the close connection between the internal secretion of the ovaries and blood production. The interaction of all the ductless glands is also probably a factor in chlorosis. In the Abderhalden test, ovarian and uterus substance is digested in chlorosis.

Menstruation is not normal in girls with chlorosis. Von Noorden found deficient menstruation in 77.2 per cent. of his cases of chlorosis. Von Jagic goes so far as to maintain that normal conditions in regard to menstruation practically exclude chlorosis. The primary and secondary sexual characters ripen early with chlorosis; the breasts are well developed as a rule, possibly a trifle too full. Low hemoglobin percentage may accompany unusually large numbers of red cells, but in chlorosis the color index is unusually low. This latter may be the case even when the reds are increasing under iron and the hemoglobin percentage is normal. Absolute lymphocytosis may be encountered, especially when the thyroid is involved. Lymphocytosis, and particularly mononucleosis, must be regarded as one of the signs of physical inferiority, particularly in persons of the hypoplastic type. Another frequent finding in chlorosis is the high position of the diaphragm; even when reclining the respiration is shallow, the diaphragm not making properly deep excursions on account of the infantile position of the ribs. The constitutional inferiority may be manifested further by narrow blood vessels and vulnerable endocardium. Pronounced mitral defects are not uncommon in women who have passed through severe chlorosis but with no history of serious infection at any time.

Münchener medizinische Wochenschrift, Munich

January 19, LXII, No. 3, pp. 73-104

84 Deep Roentgen Treatment of Gastro-Intestinal Cancer. J. Decker and H. v. Bomhard.
85 The German Medical School for Chinese at Shanghai. W. Fischer. Concluded in No. 4.
86 *Gunshot Wounds of the Lungs. (Lungenschüsse.) E. Toenniessen, A. Böttner and C. Ritter.
87 Resistance of Chest to Septic Infection. P. Reiche.
88 Gunshot Wounds of the Chest. R. von den Velden.
89 Basophile Granules in the Blood after Shrapnel Wounds. (Basophile Granulation im Blute von Schrapnellkugelträgern.) H. Lipp.
90 Action of Various Types of Bullets on the Human Body. M. Kirschner.
91 Wounds of the Eyes. B. Fleischer.
92 *Suture of Nerves. (Zur Frage der Nervennaht.) W. Spielmeyer. Commenced in No. 2.

86. **Wounds of the Lungs in War.**—The various reports here given embrace well over 200 cases of gunshot injury of the lungs. All report that the outcome in the cases reaching the base hospitals was surprisingly good. Toenniessen found that the presence of the bullet in the thorax did not

seem to influence the clinical course. There was no abscess or gangrene in any of his 56 cases, and there has been nothing so far to indicate that tuberculous processes have flared up under the injury. Böttner noticed that the abdominal walls were rigid in four of his thirty cases, although the bullet had passed through the chest alone. Conservative measures were almost always applied as, according to Ritter, it was found that even when the soft parts around the entering bullet hole showed severe infection yet the chest within was not infected, as a rule. Repeated puncture of the pleura confirmed this. When the fluid in the pleura showed infection, no time was lost in clearing out the fluid and extravasated blood. Gas gangrene of the lungs calls for immediate excision; in one such case emphysema in the neck was the first sign of the gas gangrene in the lung below.

92. **Suture of Nerves.**—Spielmeyer emphasizes that the central stump of a nerve long retains its capacity to sprout new fibers, and consequently that it is of little moment when the nerve is sutured during the first four or six months after the injury. The prognosis depends more on the location and extent of the injury, the peripheral nerves having a greater proliferating power than those more centrally located. The general health is an important factor in the outcome. Some typical bullet injuries of nerves are illustrated. They show among other things that even when a bullet has not completely severed the nerve, the bridge left suffers from contusion and extravasated blood and the cicatricial tissue that forms is too compact for the sprouting nerve fibers to penetrate. They are turned aside and the continuity of the nerve is not likely to be restored without operative intervention.

Wiener klinische Wochenschrift, Vienna

January 21, XXVIII, No. 3, pp. 57-84

93 *Infections with Bacteria of Paratyphoid Group. A. Heigel.
94 Tetanus. (Zur Prognose und Therapie des Wundstarrkrampfes.) O. Chiari.
95 *Positive Wassermann Reaction in Pemphigus. M. Hesse.
96 Vaccine Therapy of Typhoid. (Bakteriotherapie des Typhus abdominalis.) S. Mazza.

93. **Bacteria of the Paratyphoid Group.**—Heigel found signs of an acute catarrhal enteritis at necropsy of a two-weeks infant succumbing to umbilical sepsis, and he cultivated from the bowel tissues a bacillus similar to paratyphoid bacilli only that it did not agglutinate with these and that the indol reaction was positive as also fermentation of sugar. He has also cultivated a paratyphoid bacillus from an abscess in the liver of a woman dying of cancer at the papilla of Vater. This bacillus differed from ordinary paratyphoid bacilli and Gaertner's bacterium only by the absence of agglutination. He knows of no other instance on record of a liver abscess apparently exclusively the work of paratyphoid bacilli. The communication issues from the Institute of Pathologic Anatomy at Prague, but the writer fell in battle November 3.

95. **The Wassermann Reaction in Pemphigus.**—Hesse calls attention to the pronounced response to the Wassermann test he obtained in nine of eleven cases of pemphigus. With one exception there was nothing to indicate syphilis in any case.

Zentralblatt für Chirurgie, Leipzig

January 16, XLII, No. 3, pp. 33-48

97 Dislocation and Fracture of Upper End of the Fibula with the Tibia Intact. (Verrenkungsbruch des oberen Schienbeinendes mit Erhaltung des Wadenbeins: Eine typische Verletzung.) H. Riedl.

January 23, No. 4, pp. 49-64

98 *Symptoms and Treatment of Fracture of the Patella. F. Schultze.

98. **Fracture of the Patella.**—Schultze declares that there never is any diastasis with fracture of the patella unless the quadriceps is ruptured too. With this intact, even extreme flexion does not cause the parts of the broken bone to separate. The absence of diastasis therefore shows that the fracture of the patella is not accompanied by laceration of the stretching apparatus, and hence there is no need for operative intervention. If the extensor apparatus is torn, however, normal functioning can never be regained without an operation. A Roentgen picture of the knee in exaggerated flexion thus shows at once whether an operation is necessary or not.

Zentralblatt für Gynäkologie, Leipzig

January 16, XXXIX, No. 3, pp. 33-48

99 *Gynecologic Cholesterinemia Test. (Zur Bestimmung des Gesamtcholesterins im Blute an geburtshilflichen und gynäkologischen Fällen.) M. Huffmann.

January 23, No. 4, pp. 49-64

100 *Treatment of Pregnancy Kidney and Eclampsia. W. Gessner.

99. **The Cholesterin in the Blood During Pregnancy.**—Huffmann examined a large number of normal men and women to ascertain the normal cholesterin content of the blood, and then compared with this standard the findings in women at different periods during a pregnancy. It gradually increases during gestation, reaching its highest point in the last months, and then it drops to normal in eight or ten days, irrespective of lactation. The blood from the umbilical cord shows a low cholesterin content, regardless of the findings in the maternal blood. The maximum cholesterin content was found in eclampsia. It does not seem to vary with menstruation but rises during general anesthesia. It is low with cancer.

100. **Pregnancy Kidney and Eclampsia.**—Gessner queries whether these two conditions are the primary disturbance and the state of intoxication is a secondary phenomenon, or whether the reverse is the truth. He is inclined to think that the kidney disturbance is the primary trouble, and that this is the result of disturbance in the circulation in the kidney as it is pushed out of place by the enlarging uterus. A normal kidney yields readily and there is no disturbance, but if the adipose capsule is unusually thick or, for any other reason, the kidney is not freely movable and thus is unable to yield to the pressure from the enlarging uterus, there is traction on the pedicle, the circulation is interfered with and there is mischief at once. Neither in puerperal ischuria nor in pregnancy kidney nor eclampsia do the bladder and kidneys show any signs of inflammation; the disturbances all indicate merely impeded circulation through the organ. This disturbance in the circulation in the kidneys is the primary trouble, and this brings the intoxication in its train.

The logical conclusion is that in treatment of eclampsia the first thing is to relieve the traction or compression of the kidney, and the only way to do this promptly and effectually is to empty the uterus. Version should not be attempted as this impedes the circulation still more. If immediate delivery by the natural route is not practicable, then he urges extraperitoneal cesarean section according to O. Küstner, supplementing this technic by severing the vesicouterine ligaments which are the main factors in the traction on the urinary apparatus. By severing these ligaments this cuts the connections between the cervix and the neck of the bladder; even if the ligaments grow together again, they are liable to stretch more readily at subsequent pregnancies. With merely pregnancy kidney, no attempt should be made to sever these ligaments, as any manipulation of them is liable to interrupt the pregnancy. The kidney must be relieved from traction, however, and he advises cutting the ureter on that side and implanting the renal stump in the colon or appendix. This operation has often been successfully done when part of the ureter has been injured in some accident. As the traction is usually most severe on the right kidney, this should be the one first attacked. After all trouble is over, it is not a difficult matter to reunite the ureter stumps. He thinks this active treatment is much better than relying on keeping the patient under the influence of sedatives as with Stroganoff's prophylactic method, etc.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 14, XXXVI, No. 4, pp. 49-64

101 *Swallowing of Air Masks Syndromes. (Aerofagie associate.) L. Dezzi.
102 *Death after Intraspinal Injection of Novocain. C. Scandola.

January 17, No. 5, pp. 65-80

103 *Poisonings from Mercuric Chlorid in Italy. (Avvelenamenti da sublimato corrosivo in Italia.) L. Sabbatani.

104 Varnish in Dressing Wounds. (Sull' uso di un mastice adesive liquido in chirurgia.) C. Mariani.

January 21, No. 6, pp. 81-96

105 Case of Familial Spastic Spinal Paralysis. U. Montanari.
106 Benzin Excellent Substitute for Alcohol in Tincture of Iodin. G. Gremonese.
107 *Local Injections of Iodin in Treatment of Goiter. (Cura del gozzo col metodo di Luton.) I. Tansini.

January 24, No. 7, pp. 97-112

108 Dangers from Injection of Insoluble Preparations of Mercury. G. Recupero.
109 Treatment of Epitheliomas with the Active Principle of Jequirity. C. Chiri.

101. **Clinical Picture Masked by Swallowing of Air.**—Dozzi refers in particular to the cases in which some serious organic disturbance is heedlessly credited to "gas in the stomach," and thus the period for effectual treatment is allowed to slip past. The two affections in which this is most liable to occur are disease of the coronary arteries and latent ulcer in the stomach or duodenum. He relates a number of instances in which the disturbance from coronary mischief was assumed to be merely the discomfort from swallowed air. He cites the case of a prominent physician at Paris who died at 40 from this cause, his latent syphilis, the cause of the arterial trouble, ignored and hence untreated. With the Wassermann reaction we are better equipped now to detect syphilitic arterial trouble if the possibility is borne in mind that the disturbance may be more than mere discomfort from a habit of aerophagy. He has found that the swallowing of air may not only impede digestion but prevent proper utilization of drugs given by the mouth.

102. **Death Following Intraspinal Injection of Novocain.**—Scandola's patient was a priest, 69 years old, with signs of a mild myocarditis so that when a herniotomy was undertaken the lumbar route for anesthesia was chosen rather than that by inhalation, and only a small amount of the novocain solution was injected. The patient bore the operation well and seemed to be in the best of condition that night but the next day there was some delirium and signs of paresis of the intestines gradually became evident, with fatal outcome the third day. The euphoric delirium had continued all the time and necropsy showed that there were no signs of peritonitis. Merusel reported last year the death of two patients of 75 and 80 after intraspinal injection of a small dose of novocain. In several other elderly patients there was subdelirium, requiring constant surveillance, but the patients recovered after four or five days. Scandola has also had phenomena of collapse in an elderly patient who recovered finally under stimulants. The spinal nervous system seems from these and other data cited to be peculiarly susceptible in the elderly.

103. **Poisonings from Mercuric Chlorid in Italy.**—Sabbatani calls attention to the progressively increasing number of cases of fatal poisoning from mercuric chlorid in Italy in the last few years; 38 per cent. of the 4,993 cases of fatal poisoning, 1903-1912, were due to this drug. This number is below the actual facts, as probably the death from bichlorid poisoning was in some instances ascribed to other causes. Assuming that only one in three or four dies, the number of cases of poisoning would therefore total six or eight thousand in the ten years in question, to a population of about 33,000,000. The average of nearly a thousand cases a year has been much surpassed in the last two years. The number of suicides by this means has increased in fifteen years from 20 in 1899 to 309 in 1912. This great increase is seen by the statistics presented to coincide with the putting on the market of bichlorid tablets, rendering the purchase of the drug so easy. Sabbatani insists on the importance of prescribing very small quantities in ordering mercuric chlorid, so that the amount will all be used up soon and none of the tablets left over.

107. **Local Injections of Iodin in Treatment of Goiter.**—Tansini regrets that Luton's method of treating goiter has fallen into disuse as he thinks it deserves a better fate. He has had constantly excellent results from it, injecting the tincture of iodin directly into the interstitial or parenchymatous tissue of the goiter. It is indicated, he reiterates, only in the cases of follicular or parenchymatous goiter, that is, only in those in which the thyroid tissue approximates most closely to normal. The disrepute into which it has fallen is the result of applying the method to cystic or colloidal goiters, or those with vascular or fibrous changes; iodin does not act on vessel or fibrous tissue nor on degenerated tissues.

In order to exclude all such cases, Tansini makes an exploratory puncture in case of doubt. Operative measures are better in the mixed cases but sometimes he has found it possible to combine resection of part of the goiter with injection of iodin in the undegenerated regions. He injects a mixture of 20 parts tincture of iodin; 1 part potassium iodid, and 40 parts distilled water, making an interstitial injection of 1, 2 or 3 c.c. at a time, making two or three injections at different points during the same sitting. He repeats the injection at first every second day and then every third or fourth day or at longer intervals according to the size of the goiter. He has never had the goiter recur in any of his cases. The intervals since the treatment range from one to several years. The injections are only rarely painful and then there is merely slight pain for a few hours at the point of the injection.

Policlinico, Rome

January 24, XXII, No. 4, pp. 113-148

110 Clinical Value of the Wassermann Reaction. T. Pontano. Commenced in No. 3.

January, Medical Section, No. 1, pp. 1-48

111 Motor Apraxia from a Lesion in the Corpus Callosum. E. Ciarla.
112 Syndrome from a Lesion in the Thalamus. F. Bonola.
113 The Finer Structure of the Thyroid Cell. D. Cervo.

Riforma Medica, Naples

January 2, XXXI, No. 1, pp. 1-28

114 Differentiation of Appendicitis. G. Rummo.
115 Apparatus to Control the Sphygmomanometer Findings. V. Maragliano.
116 Vaccines Made from Germs after Exposure to Ultraviolet Rays. R. Lanzillotta.

January 9, No. 2, pp. 29-56

117 Importance of Suprarenal Capsule in Pathogenesis of Shock. G. Romano.
118 Plural Effusion with Artificial Pneumothorax. (Pleurite pneumotoracica.) A. Fagiuoli.

January 16, No. 3, pp. 57-84

119 Echinococcus Cysts in Supraclavicular Fossa. G. Marsiglia.
120 Cardioptosis. (Morbo di Rummo.) S. Fichera.

January 23, No. 4, pp. 85-112

121 Chronic Malaria without Fever or Enlargement of Spleen. (Malaria cronica, anemizzante.) M. Ascoli.
122 Thorium X in Treatment of Cancer. F. Salvatore.
123 *Hemolytic Jaundice; Five Cases. (Sull' ittero emolitico.) P. Biffis. Commenced in No. 1.
124 Epidural Injections in Treatment of Enuresis. (Contributo terapeutico dell'enuresi notturna col metodo Albarran e Cathelin.) E. Pellecchia.

123. **Hemolytic Jaundice.**—Biffis reports five cases in adults. In none were there any signs of cholemia, and bile pigments were never detected in the urine, but only large amounts of urobilin. The urobilinuria did not seem to parallel the anemia; even when the anemia progressed to a fatal termination, in Case 3, the urobilinuria did not increase. This suggests that the fatal outcome was due not so much to the destruction of the blood as to the lack of regeneration of the blood. The enlargement of the spleen was due to mere congestion in some of the cases. The most important feature of the disease is, he repeats, the paroxysmal attacks of destruction of blood corpuscles, the *crisi de deglobulizzazione*, as he calls them. In the acquired hemolytic icterus the jaundice is of little moment while the anemia is extreme; in the congenital type the reverse is the case. All agree that medical treatment is ineffectual in the acquired type except as repose and freedom from physical or mental stress wards off exacerbations. Biffis' unfavorable experiences with splenectomy in these cases suggest the necessity for considering well before undertaking it, bearing in mind that there is no record of splenectomy having cured the affection although considerable improvement has followed it in some cases on record.

Tumori, Rome

November-December, IV, No. 3, pp. 257-372

125 *Phenomena Observed with Transplantation of Tumors in Rats. (Contributo sperimentale allo studio dei trapianti di tumore.) S. Mazza.
126 Bilateral Fibrosarcomatous Degeneration of Brachial Plexus in a Steer about Eight Years Old. E. Ravenna.
127 The Reticular Fibers in Tumors. (Sul comportamento e sulla genesi delle fibre a graticciata nei tumori.) F. Niosi.
128 *Smooth Muscle Tumors in the Stomach. (Tumori a fibre muscolari liscie dello stomaco.) F. Nassetti.
129 Superficial Endotheliomas. (Intorno ai tumori endoteliali della cute.) L. Martinotti.

125. **Transplantation of Rat Tumors.**—Mazza noticed among the other phenomena in his experimental research that the spleen was always hypertrophied in the rats with tumors. He also found that rats previously treated with human cancer tissue seemed to be refractory to inoculation of rat tumor tissue. He thinks this latter observation encourages the hope of effectual therapeutics in man along these lines.

128. **Myomas in the Stomach.**—Nassetti found smooth muscle tumors in the stomach at necropsy of seven cadavers, all but one were of males between 45 and 71; the female cadaver was of a woman of 56. The subjects had died of pulmonary tuberculosis, pneumonia, chronic enteritis, cirrhosis of the liver, arteriosclerosis or kidney stone trouble. There had been no symptoms to call attention to the stomach except hematemesis in the liver case, and here numerous varices in the esophagus might have been responsible for the vomited blood. He reviews the smooth muscle tumors in the stomach on record, having compiled 140 such cases. In 95 cases the sex is mentioned, 37 men and 58 women. In 2 cases the subjects were boys and in 2 others girls between 10 and 20; one man and one woman between 20 and 30; one man and 8 women between 30 and 40, and 5 men and 13 women between 40 and 50. No correlation was evident between the tumors and the clinical condition of the subjects. Gastric ulcer was mentioned in only 4 cases, and in some there had been a long interval between the cure of the ulcer and the discovery of the myoma. The article is to be continued.

Brazil-Medico, Rio de Janeiro

January 1, XXIX, No. 1, pp. 1-8

130 Blood-Sucking Insects in Central America. (Contribuição para o conhecimento dos hemipteros hematophagos da America Central.) A. Neiva.
131 Prophylaxis of Syphilis in Brazil. (A prophylaxia da syphilis entre nos: Contribuição historica.) W. Machado. Commenced in No. 45, Vol. XXVIII.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 9, LIX, No. 2, pp. 153-216

132 *Two Loose Bodies in a Knee Joint. (Gewrichtsmuizen.) D. B. Boks.
133 *Treatment of Delirium Tremens. W. F. Theunissen.
134 Mikulicz' Disease. (Symmetrische aandoening der oorspeekselklieren.) A. A. H. Van den Bergh.
135 Primary Suppurative Unilateral Parotitis in Three Infants. L. Vos.

January 13, No. 3, pp. 217-284

136 *Serodiagnosis of Tuberculosis. (Een nieuwe methode van serologisch onderzoek bij lijders aan tuberculose.) J. Hekman.
137 *Pregnancy and Pulmonary Tuberculosis. (Zwangerschap en longtuberculose. Uitkomsten van een onderzoek der gegevens door nederlandsche geneeskundigen.) C. Van Tussenbroek, B. H. Vos, H. Schut and B. J. Kouwer.

January 23, No. 4, pp. 285-348

138 Tuberculin in Diagnosis and Treatment of Pulmonary Tuberculosis. B. H. Vos.
139 Adaptation of Enzyme Production in the Saliva to Chemical Stimuli. (Over het uit ramenas, zwavelwaterstof afsplitsend enzym in het speeksel. Tevens een bijdrage tot de kennis der enzym-adaptaties.) M. H. P. P. Van Haeff.

132. **Loose Bodies in Joint.**—Boks relates that the discovery of two "joint mice" in one knee of a patient started a systematic investigation of the joints of all the cadavers he had occasion to examine. He also studied the literature on the subject. In his case the man of 74 was being treated for a gonorrheal stricture when he called attention to chronic pain and discomfort in his left knee. It was evidently the seat of a deforming arthritis, but two loose bodies were found in it. The microscope showed that the loose bodies did not show the changes of deforming arthritis, evident in the joint itself. There was a history of a contusion of this knee thirty-five years before. This probably induced an infectious process and casting off of the two scraps of bone and cartilage. Their presence in the joint or other causes started later the deforming arthritis. No other joint was affected. He thinks this case throws considerable light on "joint mice" in general as there was no evidence of proliferation of new bone but merely of hyaline cartilage tissue, alike in structure in both.

133. **Treatment of Delirium Tremens.**—Theunissen compares the mortality with delirium tremens in his service in the last six years—2 per cent. of 120 cases—with Kraepelin's reported mortality of 3 or 4 per cent., Bonhoeffer and Ziehen's 9 or 10 per cent., while Ganser has had only 1 per cent. In his own 2 fatal cases, death was due to extraneous circumstances, so that his record in reality is exceptionally good. He ascribes this to the method of treatment which consists essentially in the closest watching over the patient, looking out for a relapse or a tendency to suicide. The patient is not kept alone in a separate room unless absolutely necessary. The diet is abundant but preferably milk alone. Sedatives are given as required, and stimulants are given at the end when there is anything in the previous history to suggest danger on the part of the heart. The experiences to date with treatment on these principles have been very gratifying. The sedatives found most satisfactory are paraldehyd or amylene hydrate, either internally or by the rectum. In the two fatal cases hyoscin had been given instead. Paraldehyd acts quickly, and Theunissen states that no cases of poisoning from it are known. Even when 100 or 150 gm. have been taken with suicidal intent, the result was merely prolonged slumber without disagreeable by-effects. He has observed nothing to suggest the alleged unfavorable influence on the aorta. His experience has shown further that protracted baths are not needed in treatment of delirium tremens.

136. **Serodiagnosis of Tuberculosis.**—Hekman has worked out a method with stained tissues and stained horse fibrin which, he declares, gives promise of a technic for serodiagnosis more sensitive than the Abderhalden dialysis method. He stains the horse fibrin or human lung or kidney tissue with an aqueous solution of methylene blue or eosin, leaving it in the stain for sixteen hours and then getting rid of the superfluous stain by boiling in constantly renewed water until the water ceases to show a trace of the stain. Fibrin thus prepared can be kept in salt solution or water without giving up any of its stain. But if human serum is brought in contact with the stained fibrin the latter is digested and the fluid becomes tinted with the stain. The serum of every human being contains this substance which is able to digest stained horse serum, lung or kidney tissue, but the intensity of the action varies in different persons. No law governing this variation has yet been discovered except that the serum from persons with chronic kidney disease always digests stained kidney tissue with special energy.

The digestion of stained fibrin can be inhibited by addition of tuberculin. The fibrolytic process can also be inhibited by addition of unstained albumin or kidney tissue. When the stained fibrin is being acted on by tuberculous serum, and tuberculin is added to inhibit the fibrolysis, the inhibition is much less pronounced than when the serum used comes from a non-tuberculous subject. This is the basis of the method as applied to serodiagnosis. The figure representing the limit of dilution of the serum with which there is no further digestion of the stained fibrin, is divided by the figure representing the dilution of the serum with which the added tuberculin completely inhibits the digestion of the fibrin. The quotient of these two figures is the index for this method of serodiagnosis. The index is thus characteristically lower in the tuberculous than in non-tuberculous cases.

137. **Pregnancy and Pulmonary Tuberculosis.**—This article is a brief summary of the data supplied by 155 physicians in the Netherlands who filled out question-blanks asking for their experience with regard to the influence of a pregnancy on pulmonary tuberculosis. The detailed report is to be

published in full in a Dutch gynecologic journal and it is announced that a reprint will be sent on request to Prof. B. J. Kouwer, Utrecht. Among the question blanks filled out and returned, 54 physicians reported constantly unfavorable experiences and 27 exclusively favorable. In the 35 cases of laryngeal tuberculosis, 10 of the women survived with the pregnancy carried to normal delivery, and of the children of the 25 women with severe laryngeal tuberculosis, 7 are living. Of the total 407 cases of pregnancy in tuberculous women, the disease is said to have been aggravated in 184, while no harmful influence was apparent in 223 cases. In 192 cases the tuberculous women passed through more than one pregnancy; 56 of them died of their tuberculosis. Among these one-fifth succumbed to acute miliary tuberculosis and one-ninth in the fortnight after delivery. Many of the women passed comparatively unharmed through various complications of the pregnancy, uncontrollable vomiting, hydramnion, pregnancy nephritis, premature separation of the placenta, puerperal fever, etc., revealing remarkable resisting powers. On the whole, the results of the inquiry justify a stand against the prevailing pessimism in regard to the influence of pregnancy on pulmonary tuberculosis. The pregnant tuberculous woman needs, of course, good care, repose, nourishing food, etc.

Hospitalstidende, Copenhagen

January 27, LVIII, No. 4, pp. 81-104

140 Ringworm of Nails, Scalp and Trunk in Imbecile Girl of 12. (Et tilfælde af Trichophytia ungvium et capillitii et corporis med Kultur af Trichophyton violaceum.) H. Bang and O. Haslund.
141 *Curability of Gonorrheal Vulvovaginitis in Little Girls. (Om Prognosen for Vulvovaginitis gon. infantum.) B. Pontoppidan.

141. **Prognosis of Gonorrheal Vulvovaginitis in Little Girls.**—Pontoppidan states that in 779 cases of this kind at a Copenhagen hospital, since 1896, there were complications in 6.8 per cent. He has reexamined about 22 per cent. of the cases since 1907. In 8 of these 79 patients gonococci had been still present when the patients had been discharged from the hospital, but recurrence was known in only 2 instances. All the others seem to be clinically cured. Treatment was by local application of silver nitrate and other silver salts, the concentration varying with the age of the child. In his experience, infection occurred usually about the age of 2 and treatment required several months. In certain cases exacerbations and remissions kept up for several years but the final result seems to be a complete cure so that there is little if any danger of the affection dragging along into adult life.

Hygiea, Stockholm

LXXVI, No. 24, pp. 1361-1406

142 History of Castration. B. Gadelius.
143 *Heliotherapy of Surgical Tuberculosis. S. Johansson.

143. **Heliotherapy for Surgical Tuberculosis.**—Johansson declares that the experiences with exposure to direct sunlight in treatment of bone and joint tuberculosis have brought all to a better conception of the importance of general rather than local measures in the treatment of local tuberculous processes. He has himself given a thorough course of heliotherapy in forty cases of surgical tuberculosis at Stockholm and has been much impressed with its value as a supplement to orthopedic and surgical measures. It cannot be relied on alone.

Ugeskrift for Læger, Copenhagen

January 21, LXXVII, No. 3, pp. 79-132

144 *Clinical Study of Injury from Sunlight and Artificial Light. (Lysbetændelsernes Klinik.) A. L. Fønss.
145 Exostosis on the Tibia Causing Symptoms Simulating Loose Body in the Knee; Two Cases. N. P. Ernst.

January 28, No. 4, pp. 133-174

146 *Experiences with Elliott's Operation for Glaucoma; Forty Cases. K. K. K. Lundsgaard.
147 *Treatment of Ozena by Injection of Paraffin; Thirty Cases. N. R. Blegvad.
148 Annular Erythema; Seven Cases in Short Period in One Family. (Annulat Erytem med epidemisk Optræden.) A. L. Fønss.

144. **Injury from Light.**—Fønss discusses the nature of the rays which cause erythema, and relates the experiments by Finsen and others which have thrown light on this subject. The action of sunlight on the normal skin and eyes and of light reflected from the snow is compared with their action on the abnormally reacting skin, especially in hydroa vacciniformis, variola, pellagra, xeroderma pigmentosum, solar eczema and Hutchinson's prurigo. Fønss has encountered one case of hydroa vacciniformis. The patient was a woman of 23 otherwise healthy; her skin affection first developed at the age of 8 and affected the hands, arms and face during the spring and summer, subsiding in the fall. The intensity grew less after the age of 15 but is still quite marked in the spring, the vacciniform aspect still typical. Hematoporphyrin is sometimes found in the urine.

He has also encountered four cases of xeroderma pigmentosum. The patients were a child of 9, a young man and a young woman and a woman of 41. In the latter case the affection is of thirty-five years' standing; no tumors have developed at any point, merely the typical pigmented patches, enlargement of the veins and atrophy of portions of the skin. In the other cases there were ulcerating tumors. The affection began in early childhood in the young man and at 19 there were nine ulcerations on the face and neck. The microscope showed that one was a carcinoma, the others rodent ulcers. In discussing injury from artificial light, Fønss relates the case of a young woman who worked under a mercury vapor light in copying photographs, and developed severe dermatitis on face and hands; there was only slight conjunctivitis although the eyes had not been protected.

146. **Elliot's Operation for Glaucoma.**—Lundsgaard concludes from his experience with this operation on forty eyes that it is a valuable addition to our methods of treating glaucoma, relatively certain in its effect in suitable cases, and easy to do. But there are certain dangers connected with it, which forbid its general application, especially in prophylaxis alone. Of course the earlier the operation is done the better the results, but he has witnessed several cases in which the abnormal tension in the eyeball subsided apparently spontaneously or under application of myotics, and there has been no recurrence of the tendency to glaucoma. The tension in these cases was never very high, never over 30 or 35, so that now, in cases of this type, he waits a while to see if they will not return spontaneously to normal. When the pressure is above 30 mm. and does not subside under myotics, he operates at once in all cases of simple glaucoma, even when the field of vision and visual acuity are not considerably reduced. He has never noted any aggravation afterward in such cases. With secondary glaucoma, he prefers iridectomy. The outcome of Elliot's operation was ideal in thirty-two of the forty eyes, the interval since ranging from six months to two years. In two others, both with cyclitis, there was detachment of the retina with atrophy of the eyeball, and in six the tension in the eyeball persisted unmodified. In all but one of the eight cases there was preceding chronic inflammation.

147. **Injection of Paraffin in Treatment of Ozena.**—Blegvad reports five cured or materially improved over a period of two or three years out of thirty patients whom he has treated by local injections of paraffin. The interval since has been too short in some of the others to estimate the outcome, but the fetor has disappeared in practically all. The benefit is possibly from the narrowing of the lumen, enabling the nose to be blown more effectually and thus preventing accumulation of crusts, but the modification of conditions in the mucosa is probably the main factor. The mucosa is softened and rendered succulent by preliminary injection of water, so it takes up and holds more of the paraffin. The latter is injected beneath the mucosa on the inferior turbinate and septum. It lifts up the mucosa and then the paraffin is injected directly into the mucosa. There was moderate hemorrhage in one case and quite severe in another, coming on in the night afterward, but subsiding spontaneously. In two other cases there was brief suppuration in the septum. The ultimate outcome depends on the regenerating powers of the mucosa. He uses paraffin with a melting point at 51 C.

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PAST AND PRESENT HEALTH METHODS IN LOUISIANA *

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Louisiana in every aspect of her history is unique; in the evolution of her health service no less so than in her political and social development. For many years, like Louis XIV, New Orleans thought and acted *"L'état, c'est moi"*; for her the state did not exist. Even yet, like many other cities, she is, where affairs of state are concerned, absurdly egoistic. For many reasons the attitude seemed logical, and in everything pertaining to disease especially so. Did not yellow fever and cholera attack the city first, always? Therefore, if money was to be spent in sanitation or protection, where should it be expended but there? If the city were free from pestilences, were not the people of the state safe? It was futile to argue a proposition so apparent. If the citizens of Louisiana outside of New Orleans thought at all on the subject they, too, concurred that it was from the city the inevitable epidemics spread; then why concern themselves with the lack of health supervision in the state?

As far back as 1797, an observing Creole gentleman is quoted as saying during the period of digging the Carondelet Canal, "in its neighborhood the fevers were awful, even with creoles." In 1811, 1817, 1819, 1822, 1832, 1833, 1837, 1848, 1849, 1850 and 1853, yellow fever and often cholera took their toll of human lives, sometimes few, sometimes thousands. During this period there were occasional boards of health continuing two or three years, with long intervals intervening. Having little authority or means, they were mere boards of record, and little benefit resulted from their efforts. In 1853, there was in existence one of these boards and, "the city council having adjourned for the summer," it appointed a sanitary commission to inquire into "the origin and mode of transmission or propagation of yellow fever; to inquire into the subjects of sewerage, common drains and quarantine, and to make an examination of the sanitary condition of the city." For the student of history the report of this commission is interesting reading. It was published in a volume of 560 pages, which one must have good eyesight to read. The conclusions as to the origin of yellow fever are ingeniously built up, but the recommendations of the commission read astonishingly like some of our own in the year of grace, 1914.

The decimating epidemic of 1853 moved the legislature to action and a new law was passed with an appropriation of $50,000 for erection of buildings and establishment of a more effective maritime quarantine. The "nine competent citizens" appointed to carry out these measures were selected because of their known zeal in favor of the strictest possible system of quarantine. From 1858 to 1873, though the records of these stormy political days were poorly kept and no one at any time was overzealous in the reporting of yellow fever, it was known that the disease claimed its victims every year. In 1878, there were 4,000 deaths and at least 25,000 cases, with a recurrence in 1879 not only in the city but in twenty-five other points in the state. Quarantine in all its details absorbed the funds and time of the Board of Health. Strife, disappointments, failures, honest effort to prove honest convictions, marked the days of the struggle. Finally, in 1885, a system evolved through many years' experience, the most effective yet, was put into operation.

Not until 1879 did there come an awakening as to the necessity for permanent organization of a health department. In the revision of the constitution in that year provision was made for a board of health which, to quote from a report, "began its labors with scant resources and with the quarantine buildings in a dilapidated condition." All members of this board were citizens of New Orleans, three appointed by the governor and four by the "common council" of the city. It was in no sense a state body.

In 1898 the constitution was again revised and, at last, after eighty-six years of statehood, the legislative body decreed that there should be a board of health with state functions. Where there was such dire need for this form of civic service, it does not seem credible that it could have been so long delayed.

The new board found itself without sufficient authority and gave its efforts to obtaining legislation for increased powers. It endeavored also to extend activities, but yellow fever and maritime quarantine still loomed large in the health horizon; they would not "down" and so in spite of itself, this board also walked in "trodden paths." However, when proof was clear that the mosquito was the transmitting agent of yellow fever, an educational campaign was planned and in 1905-'06 many lectures were given throughout the state. Epidemics of small-pox and typhoid diverted these efforts and after one season the educational feature languished.

The casual student of these annals is impressed with the slow growth of the service and the apparent lack of definite accomplishments; but to one who understands conditions and the temper of the people, another aspect is revealed. Once I had the pleasure of knowing a skilled engineer, a great man, who finished every narrative of experiences with the statement, "every project worth while takes its toll in human lives." It is the thought of Kipling expressed in the lines:

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* *Read before the Æsculapian Club of Boston, Jan. 9, 1915.*

> "Lift ye the stone or cleave the wood, to make a path more fair or flat—
> Lo, it is black already with blood some son of Martha spilled for that.
> Not as a ladder from earth to heaven, not as an altar to any creed,
> But simple service, simply given, to his own kind, in their common need."

There had been presidents and members of these boards of health from the earliest days of the struggle who felt the obligation to do more than was done. With the broader outlook and additional knowledge of the nineties, presidents of the state board had recommended and urged the adoption of modern methods. Their efforts were unappreciated, unrecorded, but the "simple service simply given" made possible the dawn of a better day.

I have taken this much of your time to make clear one phase of the situation—the historical—to show that up to a recent date there was no organized health force at work on general problems; that for some years after provision was made for a state service, it seemed impossible to change the routine of former years. I must further trespass on your time, to bring out another aspect—the psychologic. It is traditional with us to keep in the realm of the subconscious many things, which, if allowed to come to the surface of conscious thought, would prove disquieting. We refuse with cheerful whole-heartedness to acknowledge civic shortcomings; in fact, we pride ourselves on being true to customs and habits—hygienic or otherwise—which have been handed down.

This attitude in the past was concrete in the feeling that insanitary conditions, infections, even an epidemic, should be kept secret. "Yellow jack" and commercial stagnation were synonymous. Every one knew the "fever" was present almost all the time, so why publish the fact? With present knowledge of the manner in which diseases are transmitted, it is hard for us fully to appreciate the feeling of loyalty which was the foundation of this mistaken policy.

In 1910, the State Board of Health was twelve years of age. It had made a tentative attempt to establish a new era; it had touched the life of a few communities in which epidemics had existed, but in the main, it had worked for necessary legal authority to straighten out the quarantine tangle.

It was in the fall of this year that the present board decided to break the barriers of tradition and become an active factor in the civic life of the people. It did not take genius or learning or special insight to know that instruction was the thing needful. Nor did it take much reflection to realize that the lessons must be carried into the home life of each individual.

To meet this, through the courtesy of two public-spirited railroad presidents, one rainy November morning there rolled out of New Orleans two cars filled with "health" exhibits, and scheduled to make a stop at every city, town, village and cross-roads in the state. It was a "free show"—there were beautiful specimens of the heart, lungs, brain, and other "innards"; models that worked; models that indicated how a dairy should be built, a market arranged; cases of food which warned the housewife what not to buy; and bottles of patent medicines with warning cards to catch the eye of victims. Infant, school and home hygiene, with disease prevention and health promotion were illustrated—and it was free.

The exhibits gave opportunity to be very hospitable —to invite the mayor to see the "show," assuming that he was interested in everything pertaining to the welfare of his community, and to suggest that it would be a pleasure to inspect his town and give it a "score"; the teacher was invited to bring the school and, if he desired, some one could talk to the children first so they would "see" more intelligently and in the meantime the schoolhouse and grounds could be inspected. No public official or physician was slighted; all were cordially invited. Those engaged in serving the public as food purveyors, or otherwise, were dealt with as public servants. Every dairy, slaughter house, market, bakery, every drug store, every general store, which had on its shelves medicines, every jail, courthouse and lockup, was visited and "scored." Every owner, manager, or official whose name went on the card was sent a letter which gave details and, if needed, recommendation for improvements. If the "score" was "bad," instructions were explicit with "time limit" and if "very bad" the orders were "shut up and clean up."

Every evening, often in the open air, motion pictures were given, free, and at the meeting the results of the day's inspections were read. Without comment, the record of a market was given in full. Here is a typical report of a restaurant:

> ——— restaurant, S. ———, proprietor, is generally insanitary; the kitchen is very bad; no screens and numerous flies around; very bad water-closet about 20 feet from kitchen door; back yard dirty. Ordered a general cleaning and place screened. If this is not done in a reasonable time this place also should be closed.

That there should be no criticism or discrimination, the condition of the town or village was given. Water-supply, sewerage system, closets, garbage and waste collection, and the condition of public buildings were noted and commented on. For example, I quote from a report to the mayor of a city and president of police jury of a parish, December 22, 1910:

> During two days I have visited 8 meat markets, as many restaurants, 9 dairies, 1 butcher pen (which I am told represents the condition of all others), 3 jails, 1 school and made a number of observations around the city.
>
> Many of your restaurants need a general cleaning, especially the kitchens. The bakeries need soap and water, with whitewash and more light.
>
> Of the 9 dairies visited not one would be entitled to a score of 20 (counting 100 for perfect). I was much impressed by the number of separators. One dairyman claimed he sold butter only, yet we found another dealer buying daily from him, and, of course, we can only conclude somebody is getting milk from which the cream has been removed. Go out and take a look at the dairies and decide for yourself whether or not you desire to continue the use of milk.
>
> One slaughter-pen visited was said to be an index to the others. If this is true conditions could not be worse. Your city council should pass an ordinance requiring a central abattoir and provide a meat inspector. Your meat markets would do fairly well if provided with a sufficient quantity of water to clean the instruments for cutting and handling the meats. We found one man skinning a cow in the market. This should not be tolerated. . . . Your theaters are not properly ventilated; we refer especially to the moving-picture shows.
>
> There are too many surface closets, and the work being done by your scavenger is distressingly defective. This should be changed so as to place the service under the supervision of your local board.

> The parish jail is bad in all respects with nothing to commend it, and we demand that the old structure be replaced by a new and modern prison, or the old one be thoroughly overhauled so as to make it meet the requirements. Your city prisons are, one very defective and the other a hundred years antiquated. Give them the necessary attention.
>
> The Central High School Building is full of decaying timber; the heat and ventilation are both bad; the privies are very bad; and duty to the schoolchildren and teachers demands that these buildings be placed under ban.
>
> Your health officials are underpaid. They are timid and afraid to urge the enforcement of laws, as the public will not uphold them.

In all reports no favoritism was shown, no personalities injected. It was assumed that the citizens had a right to know and wanted to be informed as to conditions in places where they purchased food, or in the buildings where their children went to school or worked.

This high-handed and unheard-of criticism of officials and others was a bolt from a clear sky. What was the Board of Health and who was its president that he could order coal oil poured over the sausage and steak because he found maggots in the ice-box and in the meat? "Cooking killed the maggots; they didn't hurt." One man, a baker, when told he needed a bath and a clean shirt, said, "Doc, it's a good thing you hit the right day; this is tub night and time for a clean shirt. I just have one a week." His good humor was typical. There was astonishment but little resentment. Many accepted inspection as an inconvenience to be endured, but as an experience that would not occur again. They did not then know our tenacity of purpose.

It did not take long for the story of these "outlandish doings" to get abroad and we were overwhelmed with invitations. No community wanted to be left out. Soap, hot water, the white-wash brush, the rake, the shovel, the hoe and the garbage cart were brought into requisition in honor of our arrival and many a little town prided itself on being clean until attention was called to shortcomings. One fine old gentleman, mayor of a village, on being complimented, said, "Well, Doctor, I have been cleaning for a week, but my God, man, you don't think I can keep it up?" It took seven months to make the trip, but it meant a "spring cleaning" which was for many communities a new experience.

It was not only those engaged in business involving health who were shocked at these "new-fangled" lessons in cleanliness and sanitation. Dear old gentlemen and ladies—and some not so old—who had accepted sickness as inevitable, a cross to be borne because sent by an all-wise Ruler, were outspoken in their conviction as to this new "gospel of health." Men had died and worms had eaten them since the day of Adam and here was a doctor with a "health" train who would have the people believe that for the sin of uncleanliness they suffered typhoid fever; that "whom the Lord loveth he chasteneth," when the milk is unsterilized.

Since 1911, the board has bought two cars—one for permanent exhibits, the other for administration office, laboratory, and living quarters. With exhibits better planned, grouped and more pertinent to the needs of the public, two other extended trips have been made over the state and many short ones, each with some definite purpose in view. "Does it pay?" is the question asked by every health officer interested in the welfare of his state. Let us analyze.

While some things of note have been accomplished, they are few as compared with what we hoped for. We have striven for improvement in essentials.

To refer to the historical again: Local units as far back as 1882 were empowered to organize boards of health. Later, in 1902-1904, a simpler mode of organization was enacted, but up to recent years there were few such boards. It is evident that such bodies must be formed and informed with the spirit of the work before much can be done, so we have bent our efforts in this direction. Out of 195 incorporated cities, towns and villages, 104 report duly qualified officers and nominally, at least, every one of the sixty-four parishes has an organized parish board of health. Scarcely a third of these bodies can be called dependable except in an emergency; this is logical since with three exceptions, not one has sufficient funds to attempt effective work.

The outlook is encouraging, however. In a number of parishes there is a willingness to combine budget items for health by the police jury and school board, and with this fund employ a whole-time health officer. There is approval, too, of the "Tech" plan endorsed by Professor Sedgwick, of having one officer serve a number of communities. The great obstacle to this form of cooperation in Louisiana as elsewhere is the unwillingness of the "ward boss" or the dominant political faction to lessen the number of officials even in the interest of improved public service. What we need in health administration more even than increased appropriations is freedom from political domination. There will never be effective service until this reform is wrought.

I shall not attempt a list of things done. It may not be out of place, however, to mention those which we have won by tenacious, if impatient insistence, and the help of the courts. The greatest of these was the establishment of the constitutionality of our regulations. The city of New Orleans joined with our enemies to prove we had no power over the city and that our Code was unconstitutional. The Supreme Court gave us a favorable ruling both as to legality and police power. It was said we could not enforce the wrapping of bread; that the mayor could not be made to screen the city markets; that the people would not stand for prohibition of the common drinking cup and the common towel; that hotels would not meet the requirements; and that the parishes in which courthouses and jails were condemned would not provide new buildings. The doubting Thomases failed in their estimate of public interest. They were wrong; the board was right and we have had public support in all these things.

Realizing, as all health officers do, the need and value of vital statistics, in 1911 an effort was made to put into operation a system of collection of these records. In the face of tradition, we made postmasters local registrars and I am happy to say, we are now on the high road to admission into the registration area. Through the Department of Public Health, we have been given the franking privilege for morbidity reports, and, during the year 1914, a good beginning has been made for complete returns. Syphilis, gonorrhea and chancroid have been added to the reportable list.

The supervision of milk has been extended to all portions of the state; the dairies now average one-third higher than in 1911, and we have reason to be grateful for the support given us by the dairymen and others engaged in the production and sale of food.

Among the amendments to our Code, there is one which we have as yet only promulgated. It sets forth the requirements relative to the doctor's office. The board has been censured for implying by this regulation that the physicians are derelict; but it grew out of observation, and when the time comes for action not a few physicians will be astonished at their "score."

Every year one special line of work is emphasized. In 1912-1913, as a preparation for further effort, we removed from general stores harmful drugs and many patent medicines; later, analyses were made of a large number of the most popular of these nostrums. Last June the legislature gave us a law which prohibits fraudulent advertising. Armed with this and our own records, in 1915 we shall enter into what may be a losing fight against this powerful enemy.

In the realm of the intangible, two things are clear—the people have been brought into touch with a service of which, heretofore, they knew nothing. There are thousands to-day to hundreds in 1910 who know what to do to get redress from dishonest and unscrupulous food purveyors; who know that the state has provided means of protection and who, in an emergency, write or telegraph for assistance. As proof of this, the volume of office correspondence has increased tenfold and the range of inquiries in like proportion. Even in the remote rural regions, the state Board of Health has become—it may be a club or a bone of contention—but certainly an entity.

A second gratifying result is the acceptance of the policy of publicity by an ever-increasing number. When reports were read at night meetings on the first tour of the car, there were hundreds who came to listen, doubting the wisdom of such drastic methods. They wanted to hear, every one did, but they were skeptical as to the outcome. To hold up the filthy condition of a market, they said, will ruin the business; to tell us the baker is not clean will cause him to lose customers; it is not fair. Now they say, "We have a right to know; let him clean up." More than this, they write us, "The stores do not keep their food products covered; dogs stay in the market; we find mice in the bread; the children use a common cup—why don't you come and prosecute 'somebody'?" Control of infection by isolation is not universally popular or understood, but no community now makes an effort to conceal the presence of a communicable disease. Is the change in the public mind worth while? We think it all-important as a foundation for an intelligent demand for better service.

Our policy of publicity has been heartily condemned and as cordially commended. We assume that publicity is due the people whose servants we are. The office records are open to any one at any time. Complaints, calls for assistance, reports, everything in the mail is open to the reporter. Sometimes we suffer because of the point of view or the haste of the headline editor, but the policy is sound. The press, whether adversely critical or otherwise, is our best friend and ally.

Public-health work in our section has all the complexities and perplexities found elsewhere, and, in addition, others which do not obtain in many portions of the United States. You have typhoid, tuberculosis, venereal diseases, infant mortality, insanity and faulty rural sanitation; so have we, but in addition we have hookworm and pellagra and—we have the negro. He is the most difficult problem and he is so because we will not acknowledge him to be such. During 1914 we made special surveys of negro neighborhoods in New Orleans and other cities; we sent a negro teacher and lecturer with a moving picture outfit into many remote districts and we gathered what statistics we could of the prevalence among them of tuberculosis and venereal diseases. These investigations give us pause, for they prove beyond doubt that the negro is, indeed, in matters of health, the white man's burden.

This desultory sketch would be incomplete if I did not touch on our work in its relation to the physician. A full analysis would carry us into a discussion of the present medical order with its inheritances and its possibilities—the practitioner and the specialist, the sanitarian and the physician-administrator—the old type and the new—those who fear and those who are filled with courage. On the tours of the state with the exhibit cars, physicians and health officers have been unvarying in their courtesy. They acknowledge the need of this work in their own communities, but many think it a hopeless task. They do not believe the public can be convinced except through the "process of the suns"; some feel that aggressive methods are not in keeping with the dignity of the followers of Aesculapius. There is the conservative shrug and the tolerant smile, but beneath this with many—is the spirit of "God speed you" and "may your enthusiasm last." A few, from the first, have been wholly sympathetic and helpful, but candor constrains me to add that by far the greater number have regarded the movement as a doubtful experiment. It is natural that the rural physician who has not the perspective of new lines of work, should hesitate to accept radical teachings of—a health officer; likewise, it is natural that men who have for many years jogged along in the even tenor of their way should not feel enthusiastic toward modern innovations and experiments. But the doctor is, I almost said, the noblest work of God. Whatever his limitations, he is foremost in every age in the ranks of those who sacrifice themselves for the good of mankind. I have faith that whether our work now is furthered or condemned, the future will make plain its purpose and its value.

In the turbulent days of her early history, Louisiana's health code consisted of a few simple rules. "Early coffee" will keep off "the miasma" was, I think, the most popular and certainly the advice which met with general acceptance. Some of the wise conservatives "shut doors and windows at sun down" and "breathed not the night air," but to this the pleasure-loving paid little heed. With the growth of trade the vessels at the gate were the enemy. Activities centered on this menace to peace and happiness, but the thoughts of men were widened and with their discoveries there came new light and a new régime. We were slow to accept, but I am hopeful that the day of deliverance from sanitary evils is at hand.

The Clinical Art.—We may never forget that what is termed the humanity of our profession relates not merely to kindness, gentleness and sympathy. Our duties must take note of the specially human characters and varied peculiarities of the individuals we treat. This concerns very largely the management of patients, a great clinical art and equipment. We begin our professional work by studying Nature in all her forms, and, as Charles Kingsley remarked, "if we do not know Nature we cannot know art."—Sir Dyce Duckworth, *The Lancet*, Nov. 28, 1914.

A STUDY OF REVERSAL OF THE CIRCULATION IN THE LOWER EXTREMITY

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The operation for reversal of the circulation in the lower extremity, or arteriovenous anastomosis, began to receive attention soon after blood-vessel suturing was put on a stable basis by the work of Carrel and others a little more than a decade ago. Certain cases of gangrene of the foot and leg are caused by gradual occlusion of the arteries in the lower extremities. This is due to some form of arteritis in which the intima plays the most prominent part and the artery walls become so thick that complete occlusion may occur. As a rule, the veins are but slightly affected. The arterial current has been switched to the veins with the idea that the arterial blood pressure would force the valves in the veins, and arterial blood would reach the ultimate capillaries of the foot, so conveying nutrition to the tissues.

Complete reversal of circulation in the lower extremity, i. e., attaching cardiac end of artery to distal end of vein and distal end of artery to cardiac end of vein, can be of no practical importance, since the operation would be indicated only when there was such disease of the arteries as to occlude them completely or partially.

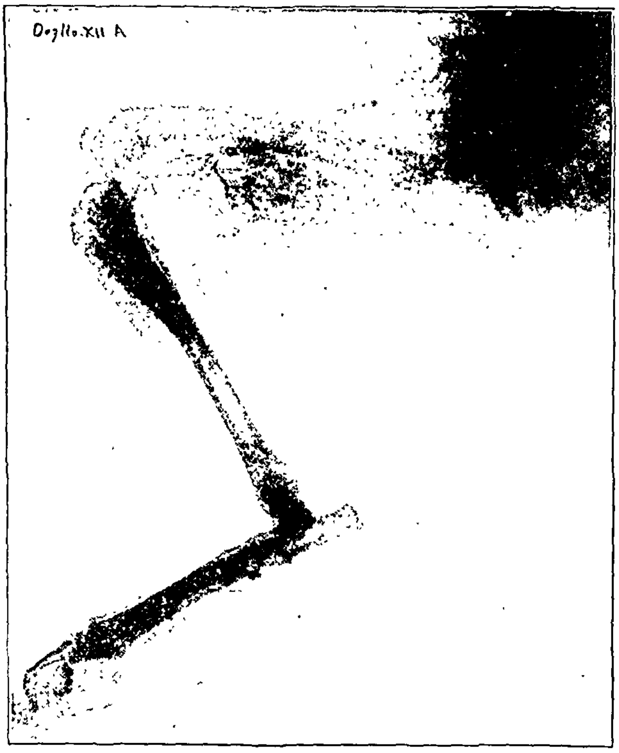

Fig. 1.—Cinnabar mass injected into the reversed circulation of Dog 12. The injection was made half an hour after operation. The roentgenogram shows that the cinnabar goes a little below the knee and returns toward the back part of the thigh in the direction of the branches of the iliac vein. In all of these roentgenograms the negatives were reversed when the photographs were printed, so the left extremity appears as the right.

A number of surgeons have done arteriovenous anastomosis with varying results. Among those who favor it are Carrel and Guthrie, Bernheim,[1] Wieting[2] and Goodman.[3] Wieting, whose experience has been quite extensive, asserts that the operation is clinically successful in his hands, though he admits that there are many questions which have not yet been settled. Bernheim is rather enthusiastic over the beneficial results obtained by reversing the circulation. Charles Goodman[3] reports a series of fourteen cases in which he reversed the circulation. In thirteen of these the end-to-end method was used and in one the side-to-side method. Of the fourteen operations, six were successful. Of eight cases in which failure occurred, including one death, one was a side-to-side, or lateral, anastomosis. Wieting used the intubation method nine times with two successes. Most of the operators, including Wieting, Bernheim, J. B. Murphy, and others, think that a lateral anastomosis with ligation of the vein on the cardiac side would be preferable to end-to-end anastomosis, as in this manner there are two channels instead of one, and the artery distal to the anastomosis is not put out of commission.

Carrel and Guthrie[4] reported experiments in reversal of the circulation, and conclude that reversal of the circulation in the limb of a dog is possible and that it can be established by an end-to-end arteriovenous anastomosis, but not by a lateral anastomosis. On the other hand, Coenen[5] of Breslau asserts that the operation is practically worthless clinically; that not all the valves give away; that the blood is shunted off through the first large anastomotic vein to the heart, and that the operation is wrong both anatomically and physiologically. Halstead and Vaughan,[6] after reviewing the literature and reporting cases, conclude that reversal of the circulation has little practical usefulness. They say:

> Up to the present writing there have been no means proposed of breaking down the resistance of the venous valves to the backward flow of blood, except by the action of the arterial current itself. It is also still a matter of doubt how much of the reversed current reaches the periphery in these cases, and how much is short-circuited, and what the individual variations are in the different cases. It is not even known for certain whether the femoral or saphenous vein, or their branches, will carry backward to the capillaries sufficient blood to maintain, unaided by the other vessels, that is, the collateral arteries, the circulation in the periphery of the limb. All these questions still remain to be determined by further experimentation.

In view of the greatly divergent views of prominent men, it has been puzzling to know just what therapeutic value can be attributed to reversal of the circulation in case of threatened gangrene through gradual occlusion of the artery. Undoubtedly, patients have improved after this operation when gangrene has not set in too promptly. Some operators have asserted that most patients have been benefited. On the contrary, patients operated on by other surgeons have not done so well. Frequently, it is stated that the line of demarcation of gangrene forms more quickly and that the stump seems to heal more promptly than would be expected if the reversal had not been done.

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[1] Bernheim, B. M.: Surgery of the Vascular System, Philadelphia, J. B. Lippincott Company, 1913.

[2] Wieting: Deutsch. Ztschr. f. Chir., 1911, cx, 364; ibid., cxix, 369, 590.

[3] Goodman, Charles: Ann. Surg., July, 1914.

[4] Carrel and Guthrie: Ann. Surg., 1906, xliii, 203.

[5] Coenen: Beitr. z. klin. Chir. (Bruns'), lxxv, 313.

[6] Halstead and Vaughan: Surg., Gynec. and Obst., January, 1912.

We have not been convinced that reversal of the circulation was of undoubted therapeutic value, and though one of us (Horsley) has had several patients in whom it might have been done, the reports were so contradictory that he felt this operation was hardly justifiable. In an effort to throw some light on the subject, a series of experiments was undertaken with the view of establishing what became of the blood in the reversed vein. In order to prove that the reversal benefits by directly giving more nutrition, it must be established that (1) the arterial blood in the reversed vein reaches the ultimate capillaries of the foot. Obviously, no benefit can obtain by the arterial blood merely running a short distance in the main trunk of the vein. 2. Can the arterial blood in venous capillaries deliver its nourishment to the tissues? 3. If the arterial blood reaches the venous capillaries, how is it returned to the heart? All of these points are interesting, but two have the utmost clinical significance: first, whether the arterial blood ever reaches the ultimate venous capillaries in the foot, and second, whether it is capable of delivering nutrition from venous capillaries if it reaches them. If either of these two problems is decided in the negative, the operation naturally has no practical value. It was with a view of determining the first problem that the experiments here recorded were undertaken.

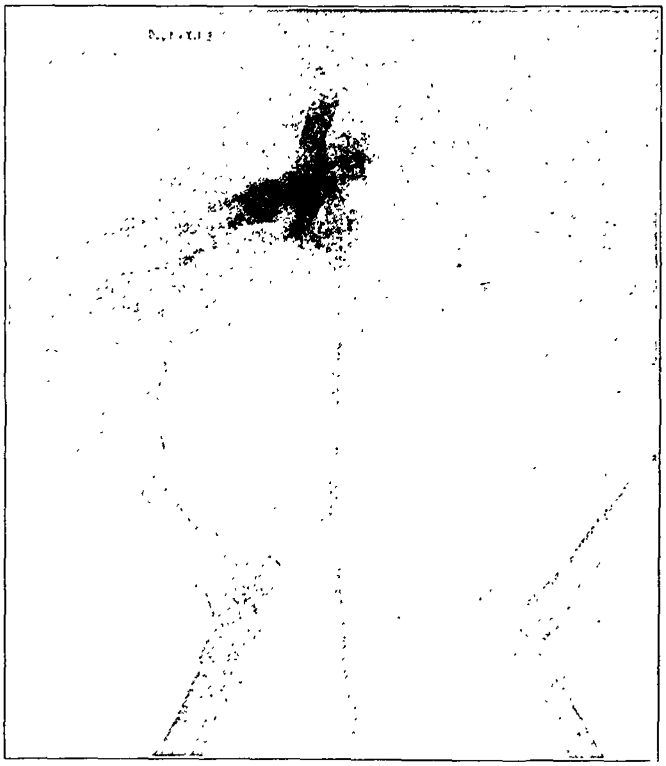
Fig. 2.—Both extremities of Dog 12 after injection of bismuth mass through the abdominal aorta. This injection was made immediately after Figure 1 was taken.

No more experiments were done than seemed necessary to prove the problem under investigation. All operations were performed under full anesthesia, and every effort was made to avoid inflicting pain.

Twelve operations were done by one of us (Horsley), all on the left lower extremity of dogs. The negatives were reversed in printing the photographs, so causing the left lower extremity to appear as the right. The anastomosis was done by the end-to-end method and cobbler's stitch, according to the technic already described.[7] This method secures broad surfaces of the intima in apposition and everts a flange. Its advantages are given in the literature mentioned.[7] While lateral anastomosis would be preferable, clinically, because it would not sacrifice the artery distal to the anastomosis, if attempted in a dog, objections might be raised that the artery of the dog is healthy, whereas in a patient with impending gangrene the arteries are partially occluded, and consequently the full force of the arterial blood stream in a dog would not be exerted on the vein, as most of the blood could be carried off through the normal, healthy artery. Injections in the vein of the cadaver would give but little information, as the enormous pressure from the syringe with its traumatizing effect could not be used in a patient. The end-to-end anastomosis delivers all of the arterial pressure into the vein, and creates the most favorable conditions for forcing its valves.

As a similar operation was done in each of the dogs, the central end of the artery being united to the distal end of the vein from one to two inches below Poupart's ligament, a detailed description of the operation in each instance is not necessary.

Of these twelve operations, two dogs died distinctly from sepsis. It is notoriously difficult, as has been pointed out by Watts and others, to secure aseptic healing in the femoral region of the dog, where infection from urine and feces is very liable to occur. In the later operations an effort was made to prevent this infection by closing the skin wound with catgut, fastening a small piece of gauze over the wound by means of six interrupted stitches through the skin, and fixing it with collodion. This dressing usually stays several days. It seemed to have some advantages, though two deaths from sepsis occurred when this method was used. Theoretically it is excellent; but practically, of the first two dogs in which this method was not used, one suppurated slightly, though the anastomosis was perfect, and the other healed primarily with occlusion at the site of anastomosis.

Five dogs were killed under ether, Nov. 27, 1914. They were Dogs 1, 2, 9, 11 and 12. Dog 8 died November 26 of some disease not connected in any way with the operation. He was injected and studied along with those that were killed. In Dog 2 there was complete occlusion at the site of operation. Dogs 7 and 5 died of sepsis, the surrounding tissue of the wound sloughing. In Dog 6 there was also marked suppuration and sepsis, though it did not seem to be sufficient to be the sole cause of death. Dogs 10, 3, 4 and 8 died of some condition not connected with the wound and which we called vaguely influenza. In all of these the post-mortem showed that the site of the anastomosis was patent and there was no thrombosis, except in Dog 3, in which a small white thrombus only partly occluded the lumen. In Dog 10, which died three days after operation, the leg was greatly swollen and congested with venous blood, though the site of the anastomosis was entirely clear. It was hoped that these dogs would live a sufficient length of time in order that they could be killed and the venous and arterial system drained of blood, which would afford much better conditions for subsequent injection. Consequently, none of the dogs that died from disease except Dog 8 was injected; but a post-mortem was held in order to determine the condition of the vessels at the site of operation.

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[7] Horsley, J. Shelton: Surg., Gynec. and Obst., May, 1914. The technic is more fully described in a monograph by Horsley, entitled Surgery of the Blood-Vessels, St. Louis, C. V. Mosby & Co.

Analyzing the experiments from a technical point of view, we see that there were two deaths from sepsis and a third (Dog 6) in which sepsis played a prominent part and may have been responsible for the death. Of course, where the sloughing was extensive, the result was a failure. In two of these dogs the parts were so gangrenous that the vessels could hardly be recognized. Of the remaining nine dogs, seven operations were entirely and one partially successful, and there was only one complete failure (Dog 2). Two were operated on a short time before they were killed, one a half hour (Dog 12) and the other an hour and a half (Dog 11). As a rule, a thrombus, if it occurs, forms soon after the operation, and as there was no obstacle whatever to the injection, these anastomoses were evidently clear. But if only dogs that lived more than two days are counted, there are seven dogs with five completely and one partially successful result and one a failure. These results, if compared with end-to-end union in this region done by other methods, appear satisfactory.

Only five of the twelve dogs were injected, examined by Roentgen ray and dissected, for the reason that it was believed it was necessary to bleed them to death and leech out the blood with salt solution in order to secure a satisfactory injection. One animal (Dog 8), which died the day before the dogs were killed, was held over and injected, and there seemed but little difference so far as the Roentgen ray showed, between the injections in this dog and in those that were bled to death. In one of the five dogs that were bled (Dog 2), there was complete occlusion of the anastomosis; so these reports of reversal of the circulation are made from four dogs that were bled to death and leeched of blood by salt solution, and one dog that died from some extraneous cause not connected with the operation, probably from some form of influenza. Dogs 11 and 12 were injected an hour and a half and a half hour, respectively, after operation.

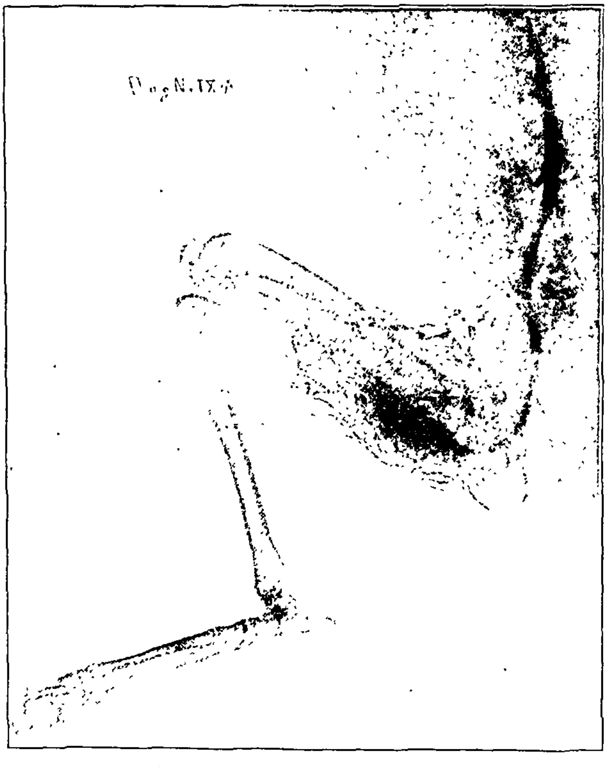

Fig. 3.—Cinnabar mass injected into the reversed circulation of Dog 9. Injection was made nine days after operation. The roentgenogram seems to show that the mass went at least no farther than in Dogs 11 or 12. Note cinnabar mass in vena cava.

The injections were made as follows: In a 10 per cent. solution of gelatin was mixed as much powdered cinnabar as would permit the mass to flow freely. This mass was injected while hot into the distal end of the femoral artery about an inch above its union with the femoral vein. The injection was made by gravity. The funnel was held about five feet above the level of the dog, the rubber tube being stripped with the fingers. The pressure must have been greater than the normal blood pressure of the dog, though no effort was made to measure it. In this way the mass might go even farther than the reversed arterial blood, because it may have broken down valves of veins under a pressure greater than the normal arterial blood pressure. It may be assumed that the pressure of the injection was at least equal to the normal blood pressure of the dog and was probably greater. The artery was tied after being injected.

A roentgenogram was taken of the left hind extremity, and the abdomen was opened and the distal portion of the abdominal aorta was injected with a 10 per cent. solution of gelatin in which as much bismuth was mixed as would permit the mass to flow freely. A second roentgenogram was then taken of both hind extremities, in order to contrast the normal circulation in the right extremity with that in the left.

PROTOCOLS (DISSECTION BY WHITEHEAD)

Dog 12.—The injection was made half an hour after completion of the operation. The femoral vein below the operation, and the saphenous, popliteal and recurrent tarsal veins were distended with the cinnabar mass as far as the level of the knee. Here the mass stopped abruptly and returned into the iliac veins through the deep femoral, internal pudendal, and gluteal veins by means of their anastomoses with branches of the veins below the site of the operation. The arteries throughout the limb were well injected with the bismuth mass.

Dog 11.—The injection was made an hour and a half after operation. No dissection was made, but the roentgenogram showed about the same condition as in Dog 12.

Dog 9.—The injection was made nine days after the operation. Here also the injection stopped abruptly at about the level of the knee, and returned to the veins above the site of operation chiefly through the channels noted in the case of Dog 12. In this dog, however, these return channels were considerably enlarged, appeared more numerous, and were distended with the injection mass. The distention was marked also in the iliac veins and in the inferior vena cava. The arteries were well injected.

Dog 8.—This dog died twenty-two days after the operation and was injected the following day. The cinnabar mass extended to the middle of the leg. The return channels throughout the thigh and upper half of the leg were apparently greatly increased in number, all the veins of the parts, both superficial and deep, being concerned in the process. They were markedly enlarged and tortuous, but their walls did not appear to be thickened. The arterial system was not well injected with bismuth below the site of operation, doubtless because of some technical error, as the arteries appeared quite normal, except that the deep femoral and the branches of the popliteal were somewhat enlarged when compared with the corresponding arteries of the opposite side.

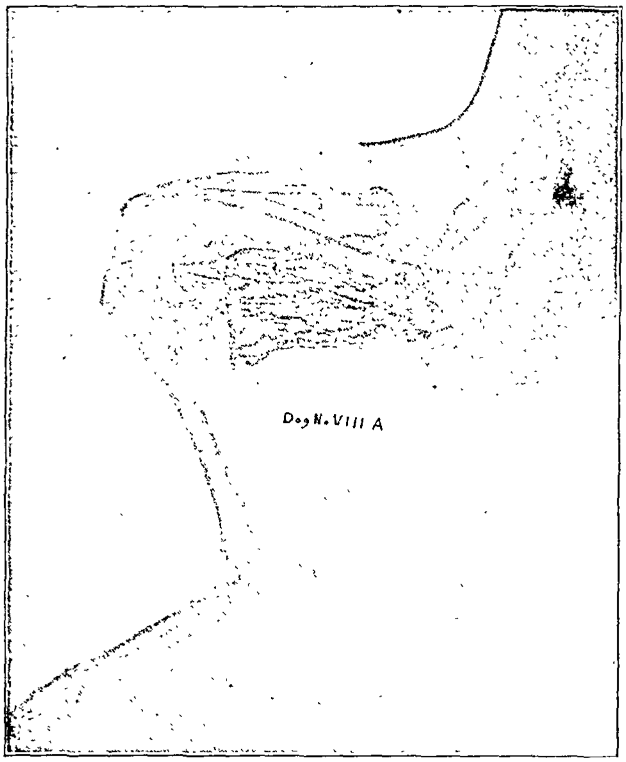

Fig. 4.—Cinnabar mass injected into the reversed circulation of Dog 8. The dog died twenty-two days after operation. It was preserved for twenty-four hours and then injected as in the other dogs. Note the very large collateral veins that conduct the mass easily to the iliac veins and the vena cava. Also note the cinnabar mass in the vena cava.

Dog 1.—Injection was made forty-six days after the operation. In this animal the venous injection reached the foot. The enlarged and tortuous condition of the venous branches, which was so marked in Dog 8, is not evident in the thigh, but is quite well marked in the leg. All the veins, however, both superficial and deep throughout the thigh and leg, contain the injection. The roentgenogram does not give a correct interpretation of the condition of these vessels; evidently the injection mass did not contain enough cinnabar to make solid shadows of all the veins. The branches of the deep femoral and popliteal arteries were enlarged, and extensive anastomoses between them, especially in the substance of the posterior femoral muscles, were evident; that is, an arterial collateral circulation had developed.

The Roentgen ray shows that in four (Dogs 12, 11, 9 and 8) of the five dogs, the injection mass reached only a short distance below the knee, and that it returned through the back part of the thigh and in the general direction of the branches of the iliac veins. In Dog 8 (twenty-two days) the vessels show enormous collateral venous circulation which apparently conducted the blood quickly into the branches of the iliac vein. In Dog 9 (nine days) and in Dog 1 (forty-six days), which were bled to death, the cinnabar flowed freely from the cut external jugular vein soon after the injection into the reversed circulation was started. According to the Roentgen ray, the cinnabar mass in the reversed circulation did not go far below the knee in any of these dogs except in Dog 1. In Dog 1 the Roentgen ray shows that the cinnabar goes almost to the foot, and the dissection demonstrates that it goes a little farther than the Roentgen ray indicates. The roentgenograms reveal the inferior vena cava filled with cinnabar in all the dogs except those killed shortly after operation.

The second series of roentgenograms made after the bismuth injection, which gives the general arterial circulation in both legs and both feet, shows quite clearly that below the thigh the arterial circulation is practically the same in the left leg and foot as in the right leg and foot. The second roentgenogram in Dog 1 was not satisfactory, but showed some bismuth in the arteries of both legs. The other four pictures of the second series were quite good. In Dogs 11 and 12, injected shortly after operation, the Roentgen ray shows that the circulation in the left foot and leg was apparently the same as in the right foot and leg. The collateral circulation here was so ample that the bismuth was carried in full quantities from the abdominal aorta around the point of obstruction to the leg and foot. This being the case in dogs that had just been operated on, it is not surprising to find that the collateral arterial circulation in the dogs that lived nine days or longer was at least equally good.

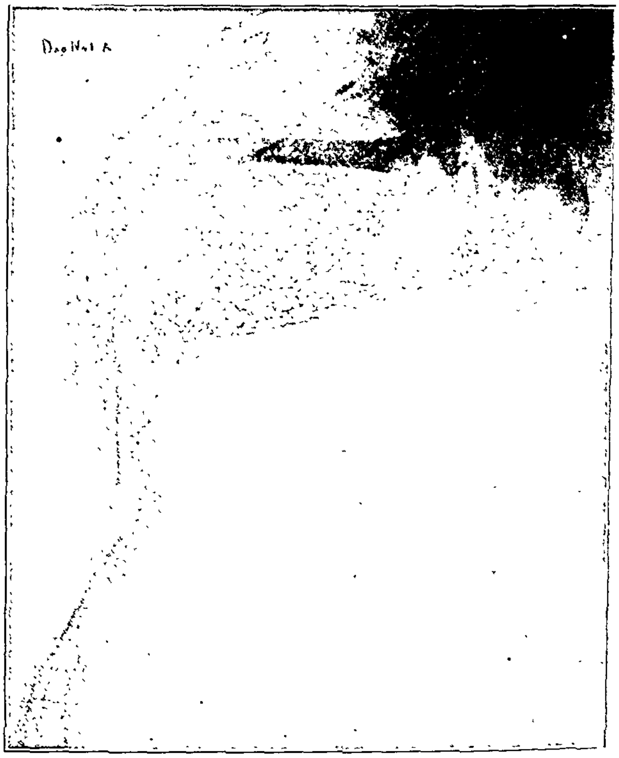

Fig. 5.—Cinnabar mass injected into the reversed circulation of Dog 1, forty-six days after operation. The mass here has reached almost to the foot. Dissection shows that the mass went a little farther than indicated by the roentgenogram. Much of the cinnabar was drained off through the external jugular before it had hardened, so the large veins are not full. The Roentgen-ray plate, however, which is larger than the print, shows the mass in the vena cava.

It seems justifiable to draw the following conclusions from these experiments: 1. The tendency of the arterial blood in a reversed femoral vein is to return to the vena cava by the nearest anastomotic route. 2. In the course of time very large anastomotic veins form so that the mass injected into the reversed circulation quickly and easily finds its way into the vena cava. 3. It is most probable that the arterial blood in the reversed circulation never reaches the ultimate venous capillaries of the foot, but if it does it must be after many weeks, long after the time that any good could be accomplished by bringing nutrition to the tissues, even if nutrition could be absorbed from venous capillaries. These experiments seem to show that even when the full arterial pressure of the femoral artery is turned into the femoral vein by an end-to-end anastomosis, the arterial blood in the reversed vein never reaches the venous capillaries of the foot, and does not even reach the smaller veins in the lower part of the leg for more than twenty-two days.

How, then, can we account for the apparent improvement in many of the reported cases of reversal of the circulation in patients? Certainly not all of these reports can be argued away, and they must rest on some basis of fact. In the successful cases reported, it has been usual to find that the day after the operation the foot appears warmer and the color is better than before operation. It has been asserted, therefore, that the improvement must be accounted for by the operation and by the fact that the arterial blood is reaching the distal parts through the reversed vein. A great many reversals of the circulation have been done by surgeons untrained in blood-vessel surgery who have used the end-to-end method, and it is natural to expect that there will be a large percentage of occlusions by thrombosis following such work. In no other branch of surgery is laboratory experience so essential as in preserving a patent lumen after suturing blood vessels. It is easy enough to unite the artery and vein so that the line of union will not bleed at the conclusion of the operation, but the technically successful operation is the one in which the lumen remains permanently patent. It seems to us that these temporary improvements are best accounted for in the following manner:

The cause of the impending gangrene for which these operations are done is partial occlusion of the artery, while the veins are but little if at all affected. An artery that would normally carry 100 per cent. of its capacity is under these altered conditions carrying only, say, 25 per cent. of its capacity, but the capacity of the veins has been but slightly altered. Now, nutrition for the tissues is taken from the arterial blood in the capillaries and depends not only on quantity and quality of this blood and the ability of the tissues to absorb it, but also to some extent on the length of time during which the arterial blood bathes the tissues. With the artery working normally and the veins normally, a definite physiologic period of time during which the arterial blood remains in the tissues is maintained; but with the capacity of the artery cut down to about one-fourth of normal or even less, and the capacity of the veins but slightly interfered with, the small amount of arterial blood that does reach the tissues is drained away by the unobstructed veins more quickly than normal. The arteriovenous anastomosis stops the venous current in the femoral vein either by the force of the arterial blood stream or, more probably, particularly when done by those inexperienced in vascular surgery, by thrombosis at the site of operation. This, of course, obstructs the vein and more nearly restores the balance between the venous and the arterial circulation. In other words, the operation dams back the arterial blood in the capillaries so that instead of being drained off too rapidly, the arterial blood is compelled to stay the normal time and possibly even somewhat longer than normal. In this manner the improvement as to the color and warmth of the affected limb can be accounted for. But if the occlusion has been by thrombus it will probably extend until too much of the venous system is plugged, and gangrene will follow.

It seems, then, that reversal of the circulation has no legitimate place in clinical surgery, except possibly in Raynaud's disease, if we accept the pathology of this disease as being solely a spasm of the arterioles. In this disease, if a reversal is done as close as possible to the terminal vessels, it might act by so raising the blood pressure in the veins as to cause an intense hyperemia in the capillaries and arterioles; the small vessels may be dilated in the same way as in Bier's hyperemia, only as there would be positive arterial pressure in the veins, the dilatation would be somewhat greater than after a simple Bier's hyperemia. If Raynaud's disease has no organic pathology and is merely a spasm of the arterioles, it is conceivable that this operation might be beneficial, not by sending arterial blood through the reversed veins into the capillaries (for, as shown by these experiments, this in all probability cannot occur), but by maintaining a constant dilatation of the terminal arterioles.

In impending gangrene due to organic disease of the artery of any kind, reversal of the circulation appears unjustifiable. It seems, however, that such cases may be materially benefited by merely ligating the femoral vein. This would tend to balance the circulation by obstructing the venous circulation and permitting the arterial blood in the capillaries to bathe the tissues a longer time than would be the case if the venous circulation was unobstructed. This operation, then, of ligating the femoral vein in threatened gangrene in the lower limb due to partial occlusion of the arteries appears to have a proper field. The resulting improvement should be as great as after any kind of arteriovenous anastomosis, and the operation is much simpler and less dangerous to the patient.

Our thanks are due to Dr. Charles M. Hazen of Richmond, Va., for the Roentgen-ray work in these experiments; to Dr. Arthur S. Brinkley, for assistance in the operations, and to Dr. A. A. Houser for help in injecting the specimens.

Children and Street Work.—Sixteen states and the District of Columbia now have some regulation of street work for children. According to the National Child Labor Committee eight other states are this year considering similar laws. One state with a fixed limit of age for street trading is now proposing to raise the limit. The bills before the state legislatures vary somewhat, but generally they fix an age limit, provide for badges or permits for children at work on the streets, give the school authorities power to grant and recall permits, forbid work at night and empower certain officers to enforce the law. In some states the provision is to be state-wide; in others it will apply to cities of certain size. The tendency is to make the age limit similar to that for child labor in factories. All street trades regulation aims to insure proper schooling for the child. The National Child Labor Committee calls attention to the fact that the most important thing in connection with these laws is to secure their proper enforcement, which is distinctly up to the people.

THE TOOLS OF OUR TRADE

THE INDICATIONS PRESENTED BY MENTAL DISEASE AND THE MEANS AT OUR COMMAND FOR MEETING THEM *

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Under the above caption I propose to review the means at our command for combating insanity after it has occurred. The discussion of prevention is foreign to my present purpose, as is also the general problem of the care of chronic cases. I will therefore leave untouched such questions as those of general hygiene, employment, retraining, after care, family life and like matters, and will turn my attention directly to the purely medical aspects of treatment.

In order that we should realize and view in their proper proportions the indications, possibilities and limitations of the therapeutic means at our command, we must first, though necessarily briefly, consider the nature of the problems confronting us. In other words, previous to an intelligent attempt at treatment, we must have some knowledge, or at least some idea, of the pathology of the diseased states with which we are dealing.

PATHOLOGY IN MENTAL STATES

Considerations into which I cannot enter here point unmistakably to the essentially toxic nature of insanity. In a recent paper on the pathology of insanity, I pointed out that the facts suggest that we have to do with biochemical processes akin to those of infection and immunity; and I instanced in this connection melancholia, which with its history of gradual invasion, maximum onset of symptoms, gradual subsidence and final recovery, presents a striking similarity to an infection. I cannot pause to cite the numerous facts proving the presence of poisons in insanity; suffice it to say that the evidence deals, on the one hand, with poisons introduced from without, and, on the other hand, with poisons formed within the body; that is, the problems presented are of two kinds, namely, those of exogenous and those of endogenous intoxication.

Again, some poisons exercise but a short tenure; that is, the intoxications which result from them are of short duration. In such instances, the organism successfully resists and disposes of the poisons speedily and promptly. The poisons are successively submitted to the defensive action of the gastro-intestinal juices, the defensive action of the liver and other glands, are variously changed chemically, and finally destroyed or eliminated; but these are not the poisons nor the processes which concern us here. The poisons with which we deal in mental diseases are those of long tenure, those which are not destroyed by the various glands and other defensive structures, and which consequently influence the metabolism of the organism for long periods of time, usually many months. Not only is this true of the poisons present in mental diseases which are essentially neuropathic and hereditary, such as the manic-depressive group and the group of the dementia praecox and paranoia, but also of those in which the poisoning is primarily of extraneous origin. Thus, when prolonged insanities ensue after acute infections, the poisons at work have their origin in a secondary disturbance of function of the liver, of the thyroid, of the kidney, of the adrenals and of other glands and tissues. The fact of such involvement is based on indisputable clinical and pathological evidence. Consequently a disorder of metabolism ensues which constitutes of itself an auto-intoxication, an auto-intoxication secondary to the original infection. The instance of alcoholic confusional insanity offers an even better illustration. Here the symptoms of mental disorder persist for many months—long after the patient has ceased to take alcohol. Clearly it cannot be the alcohol that is keeping up the symptoms; the persistence of the latter must be due to autogenous poisons, poisons which are the result of disturbance of function in various organs induced by the alcohol. This disturbance profoundly affects the substances normally elaborated and thrown into the circulation by the various glands and tissues. It would appear, then, that in all long continued forms of mental disease, no matter whether arising spontaneously from poisons bred within the body, or indirectly as a result of infection or poisoning from without, we have to deal with problems of auto-intoxication.

When we come to consider the nature of this intoxication, the facts at our disposal are extremely interesting. We know that these poisons are not mineral salts and also that they are not leukomains. Thus, there are no facts of chemistry to indicate that either the mineral salts or the leukomains are the toxic factors, and secondly, both of these groups of substances are readily eliminated—readily discharged from the organism—while the toxins of insanity are either eliminated very badly or not at all. Indeed, the position of the toxins of insanity is exactly like the position of the toxins of infection, for example, of typhoid fever. No amount of purging, diuresis, or sweating enables us to get rid of the toxins in typhoid fever. The latter are protein bodies, the injurious character of which nature combats by the process of immunization, a process long and tedious. The parallel between the behavior of infection and the course of mental diseases I have already instanced in the case of melancholia; and, indeed, in the manic-depressive group this parallel appears to be complete. It appears also to be complete in the secondary auto-intoxications resulting from the infections, and equally, though less clearly so, in the secondary auto-intoxications following poisons introduced from without. In all forms of secondary auto-intoxication, it may be safely claimed, the tendency is to a restitution of the normal condition.

In the heboid-paranoid group (dementia praecox and paranoia) the picture and the problems presented are much more complex. However, there is again the same unmistakable evidence of toxicity. There is the early period of depression which has a distinct wave-like course followed by a later period of expansion, also wave-like. Accompanying these phenomena there are those of a progressive deterioration which in the larger number of cases terminates in dementia. Some of the cases of dementia praecox, however, as is well known, pass through the cycle of depression and expansion, but instead of permanently deteriorating, terminate finally in a recovery. This recovery, however, is rarely complete; quite commonly it is approximate only. Usually, indeed, evidences of mental reduction are distinctly present. Cases of supposed recovery pass through a recurrence some years subsequently,

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* Presidential Address, read at the annual meeting of the Philadelphia Psychiatric Society, Jan. 8, 1915.

terminating in a recovery less pronounced than the first, or perhaps with more marked impairment; or, it may be, that this or a subsequent recurrence terminates in a marked dementia. Paranoia and the definitely marked paranoid states we may dismiss by recalling that in them the element of toxicity is revealed by the prolonged wave-like periods of depression and expansion, periods which usually embrace years in duration, and which, as in dementia praecox, are accompanied by a progressive deterioration.

Evidently the difference between the course and termination of the manic-depressive group and the course and termination of the heboid-paranoid group depends on special factors present in the latter. For the sake of clearness, let us turn our attention, first, to the manic-depressive group. It would appear that here in the beginning of a wave, an antigen makes its appearance, and that this antigen is dominant until the fully developed stage is reached, when, after a time, antibodies become dominant and remain so until the normal condition is restored; in other words, until immunity is established. Unfortunately, in very many cases, the process does not end here, but antibodies continue to be formed until they are present in excess and then they in turn take on the character of antigens and a new cycle opposite in its phase is entered on and persists until immunization is again established. Such a view and no other explains the sequence of depressive and manic phases. As to the origin of the original antigens no definite knowledge at present obtains. That they are endogenous must be frankly admitted; that they are due to a disturbance of the hormones, of the internal secretions, using this term in its widest sense, is extremely probable. Finally, that this disturbance is one which permits of complete and full immunization, and therefore of a complete recovery—a recovery without impairment—is a conclusion in accord with clinical experience.

In the heboid-paranoid group (dementia praecox and paranoia), the problem, as already indicated, is somewhat different. We have again to do with affections that are, as in manic-depressive insanity, innately neuropathic, but they present this additional and important fact, namely, that they occur in organisms fundamentally and morphologically defective. The defects are sometimes gross and evident to a degree; at other times they are matters of legitimate inference. As a rule, it is not until the organism enters on the great transformations involved in the transition from childhood to puberty and adolescence, and in the still further change from adolescence to maturity, that the inherently defective and aberrant character of the organism becomes apparent. If the defects and aberrancies are great, symptoms may make their appearance early and give rise to the insanities of adolescence; if they be more recondite, the appearance of symptoms—i. e., the crass appearance of symptoms—may be delayed until later, then giving rise to the various paranoid states of the adult.

Let us turn our attention primarily to dementia praecox. The organism is in childhood able, perhaps, to meet the various demands of its existence. Its chemistry is as yet comparatively simple and it meets its physiologic necessities in a normal, or in an approximately normal, manner. As puberty is approached and entered upon, however, everything is changed. The sex glands, and with them all of the other glands of internal secretion and hormone producing structures generally, take on a new rôle. A new chemistry is entered on. The organism being badly constructed, this chemistry becomes aberrant and toxic. Some years ago, together with Dr. A. G. Ellis, I pointed out that the ductless glands in dementia praecox differed from normal ductless glands, among other things, more or less markedly in weight, and also, it seemed, in structure. Later, Fauser, by employing the method of Abderhalden, demonstrated the presence of ferments in the blood whose action can only be interpreted as a defense against the sex glands, and, in given instances, also against the thyroid and the cerebral cortex. Fauser's findings have been confirmed, with some variation of detail by a large number of other investigators, and the inference that in dementia praecox there is a profound disorder of the internal secretions involving the sex glands, the thyroid and in all probability other structures, is unavoidable. The studies of the rôle of the sex glands in dementia praecox by Parhon and his associates likewise admit of no other conclusion, and this is also true as to the involvement of the thyroid gland. It may now be stated without fear of contradiction that the theory of a disturbance—an imbalance and other change—of the internal secretions in dementia praecox has left the realm of speculation and has entered on that of established fact. In other words, as in manic-depressive insanity, the organism in dementia praecox is autotoxic, but this autotoxicity stands in a very different relation to immunity than it does in the manic-depressive group. The clinical history of dementia praecox, the fact that it presents a wave-like initial period of depression followed later by a wave-like period of expansion, suggests, of course, the interaction of antigens and antibodies similar to that which is indicated in manic-depressive insanity. As in the latter, the patient may pass through an attack of dementia praecox without presenting at the end any mental impairment; but this is, as I have already pointed out, distinctly the exception. The course of the affection in by far the larger number of cases is attended by a mental impairment that is progressive and finally pronounced; and yet we must recognize in its wave-like course—often clearly marked in the remissions and recoveries which every now and then ensue—the effort of the organism to overcome toxicity, to restore the balance of nutrition, to bring about immunization. That this immunization is difficult and often incomplete results probably from the inherently defective make-up of the organism. It would also appear that the antibodies, that is, the ferments which arise to defend the organism against the perverted and therefore toxic internal secretion of the sex glands, have unfortunately also a fermentative, a destructive action on the cerebral cortex. The disorder and imbalance of the internal secretions are thus clearly shown; first, in that the internal secretion of the sex glands acts as a foreign body and assumes the rôle of an antigen, and secondly, in that the antibody evolved has a toxic action on the brain and other structures. The point of practical importance for us, however, is that, in spite of her frequent failures, nature makes an effort—often a prolonged effort—to combat the auto-intoxication of the patient and to bring about immunization.

TREATMENT

With these preliminary considerations of the pathologic processes going on in our patients, let us turn our attention in the treatment or management of these disorders; first, to the indications present, and secondly, to the means at our command. The first indication is evidently to assist, if possible, in the production of antibodies. In the cycles of melancholia and mania, and in the secondary auto-intoxications of ectotoxic patients, the indications are very clear and the outlook most promising. What can we do here to assist nature? In what way can we favor the production of immune bodies? Evidently the resources of the organism are increased by adding to its substance, and the first indication is to give an abundance of nourishment, to practice full feeding just as we do in tuberculosis and in states of depressed nutrition generally. Full feeding does more than to add to the weight of the body and to encourage the repair of exhausted tissues; it distinctly favors the formation of lipoid substances, substances which we now know play a most important rôle both as antigens and antibodies. The rôle and significance of lipoids is well shown by an instance such as the following: A patient with a clear history of syphilis was submitted to the Wassermann test of the blood, but with a negative result. On further examination it was found that the patient was a little obese, a little overweight; in short, in a condition of hypernutrition. He was then placed for a time on an exclusive and limited diet of skimmed milk, together with the daily administration of salines. The blood being again examined after an interval of ten days or two weeks, the Wassermann reaction now proved to be positive. It was negative at first, probably because of an excess of lipoids.

The practical results of full feeding, and at times of massive feeding, are so well known as not to call for comment. That these results are due not only to a general improvement in nutrition, but also to the more liberal and readier formation of antibodies, is a most important fact for us to recognize.

The thought arises whether it would not be of value to administer lipoids—for instance, cholesterin or lecithin—to our patients directly to hasten, if possible, the production of immunity. It is probable, however, that lipoids introduced by the intestinal tract would be in some way changed either by the process of digestion or in their passage through the liver so as to lose their specific value. A parenteral introduction would therefore be indicated; but whether such an introduction could be successfully accomplished and, especially, in sufficient amount to have an appreciable effect, would be a matter for experiment.

An expedient practiced more especially by Pilcz in Vienna here deserves mention. It is a well known fact that an infectious process, such as erysipelas, sometimes leads in paresis to a remission. This is in keeping with the fact that an attack of typhoid fever or other acute infection occurring in the course of a melancholia, mania or it may be of some other psychosis, frequently leads to an abrupt termination, a cure, of the attack of insanity. Evidently this result is due to the fact that the infection stimulates the formation of antibodies. Pilcz, taking advantage of this fact, has inoculated cases of paresis with the toxins of erysipelas and has thus induced remissions.

The second indication of therapeutics in mental disease, one which is naturally and closely associated with hypernutrition, is rest. Rest, whether it be relative, partial or complete, is an indication as clear as that of full feeding. Indeed, rest is a veritable prerequisite of hypernutrition. Unfortunately it is rarely carried out in this country as radically as it is in Germany. Rest in bed is with us, as a rule, limited to the few patients who cannot get out of bed and is not applied as a special procedure to any large proportion of cases. Neurologists apply rest to their cases of neurasthenia, hysteria and allied functional affections and to the rather limited number of mental cases suitable for extramural care. That by this means recovery is greatly hastened, is a matter of such general experience as to be beyond question. It is rather remarkable that the Weir Mitchell method has been so little applied in the asylums of this country, while it has been applied, in principle at least, most extensively in Germany. Hypernutrition is in many cases impossible without it. We rest and full feed our cases of infectious diseases, for example, tuberculosis; why should we not rest and full feed the autotoxic, the—so-to-speak—self-infected patients whom we term the insane?

Thus far we have become acquainted with two tools of our trade, full feeding and rest. Full feeding has been long appreciated and understood by us, but this cannot be said of rest, that is, of radical rest in bed extending over months of time. That its value is inestimable Weir Mitchell long ago demonstrated and every neurologist can confirm. Its introduction into our asylums on a true hospital basis, with adequately trained nurses, is to be, I believe, one of the great achievements of the future.

We must now pause to turn our attention to a special and extremely important point both of etiology and therapeutics. Since the introduction of serologic studies, the Wassermann reaction has been found to be positive in a very large number of the insane. Not only has it been found to be positive in 100 per cent. of paretics, but also in a large proportion of defectives; not only in feebleminded and idiotic children, but notably also in cases of dementia praecox. In my personal experience, the Wassermann reaction has proved positive in dementia praecox with suggestive frequency, but attention should be especially directed to statistical studies such as have recently been published by Max A. Bahr in the Report of the Pathological Department of the Central Indiana Hospital for the Insane. Bahr found that the Wassermann reaction was present in 32.1 per cent. of his dementia praecox cases. Certainly such a finding cannot be a coincidence, but must have a profound significance. The importance of the result grows when we recall that in paresis and tabes the earlier writers claimed that only a percentage was due to syphilis while it is now admitted that *all* such cases are syphilitic in origin. It is probable that an improvement in methods will gradually add to the number of dementia praecox cases in which syphilis can be demonstrated. It is well known that children in whom the clinical evidences of inherited syphilis are indubitably present frequently yield a negative Wassermann. Probably this is due to the presence of an excess of lipoid substances; possibly to other and as yet unknown factors. At any rate, we should at present recognize that the study of a case of dementia praecox is not complete without a Wassermann examination, at least of the blood. If the latter fails, a luetin test should be made or possibly the sero-enzyme test according to the method of Abderhalden, as has recently been quite extensively done by Baeslack. Possibly these and other methods still to be devised, will prove that all cases of dementia praecox bear the evidences of a syphilitic inheritance. It is also a suggestive fact that cases of dementia praecox are—at least in my experience—

remarkably tolerant to mercurials. However this may be, the question that immediately concerns us is, Are the symptoms of dementia praecox to be regarded as the result of an active syphilitic process or are they to be regarded as due to the breaking down of an organism whose glandular and general organic evolution has become defective and aberrant, due to the presence, during the period of development, of the treponeme and its toxins? I fear that an increasing knowledge will reveal the latter to be the correct interpretation, and that antisyphilitic remedies will in dementia praecox accomplish but little.

The question further suggests itself, Do other infections have a similar effect on the embryo, the fetus, the developing child? While this is not impossible, little can be directly laid to the door of the acute febrile infections, the exanthemata, judging from our clinical histories. How is it in regard to tuberculosis? We can safely answer that the facts as to a tuberculous ancestry in cases of dementia praecox are inconclusive. Patients with dementia praecox, it is true, often betray an undoubted tendency to tuberculosis, a true anaphylaxis, but it is extremely probable that this anaphylaxis is not hereditary, but exists as a direct result of the imperfectly developed, the damaged, glands of internal secretion. This is doubtless the real reason for the lessened resistance to tuberculosis. On the other hand, tuberculosis in the ancestry does not seem to be a cause of dementia praecox.

It can hardly be doubted that the remarkable relation between syphilis and dementia praecox which is now coming to light and which seems to be becoming more clearly defined with increasing experience, will greatly influence our therapeutics. It would seem that in a given case we are not discharging our full duty unless specific treatment be not only instituted, but pushed until the Wassermann reaction becomes negative. Again, the question arises whether examinations should not be made of the cerebrospinal fluid and treatment with intraspinous injections of salvarsanized serum carried out as in the treatment of tabes and paresis. Certainly here are matters which merit our most thoughtful consideration.

TREATMENT OF SPECIAL SYMPTOMS

Having considered various factors, general in their character, both of pathology and therapeutics, let us now turn our attention to the various measures at our command for the control of special symptoms. Among these is the bath, more especially the continued warm bath first used in Germany. That this continued warm bath is wonderfully efficacious in disturbed and excited cases is of course well known. It is a procedure especially adapted to active deliriums, to acute mania, to the excited periods of dementia praecox and to other active disturbances. As a rule, the patient who has been struggling soon becomes quieted by the procedure, and the effect persists for some hours or longer, after the patient has been taken from the bath. The question arises, How is this effect produced? The bath undoubtedly stimulates elimination by the skin, and it is not improbable that in disturbances normally of short duration, for example, alcoholic and other deliriums, the stimulation of the cutaneous elimination is the important factor at work. However, this is evidently not the case in other and long continued disturbances, for example, in true mania. No procedure as yet devised will cut short or abort an attack of mania; while the continued bath lessens the disturbance, it does not in any way lessen the duration of the manic wave. Similarly no method of bathing can lessen the duration of an attack of melancholia; melancholia for some reason when accompanied by disturbance, as in the agitated form, does not yield, as do other excited states, to the bath; indeed, the continued bath is not applicable to this affection. Further, as regards dementia praecox, while the bath lessens the excitement in disturbed cases, it cannot in any way influence the latter in duration. Finally, elimination cannot be the active factor in the quieting of mania and of the excited periods of dementia praecox, because the toxins present *cannot* be eliminated by the skin, no more—as has already been pointed out—than can the toxins of typhoid fever. As in typhoid fever, nature appears to combat the toxins of insanity by the slow and tedious process of immunization. In what manner, then, does the bath quiet the disturbed patients? It would appear that the warm water of itself has a calmative effect, a relaxing influence. In addition, the fact that the clothing has been removed and that the body half-floats in the water, lessens the tendency to resistance. Resistance is to a large extent reflex and is stimulated by that which it encounters. Possibly a contributing cause is also the fall of blood pressure in the peripheral vessels. However, this may be, the continued warm bath is also a form of restraint, and as such is the best, the most humane, the most physiologic form of restraint yet devised. Similar remarks are applicable to the warm pack. Here the warmth and the free sweating induced are likewise factors conducing to the relaxation and the calming of the patient, but the pack is in addition also a method of restraint. The word restraint has very unpleasant associations and another word such as "control" would be very much better. Years ago Dr. John B. Chapin suggested the word "disturbed" as more suitable and less offensive than such expressions as noisy, maniacal or excited when applied either to patients or to the wards of a hospital. The introduction of the word "disturbed" constituted a distinct advance in our terminology, and in the same way such a word as "control" would be much more acceptable than the old word restraint, and especially so as restraint in the old sense has practically disappeared from our asylums.

Other methods of hydrotherapy than the bath do not in the present paper call for consideration. There is one procedure, however, which deserves especial mention and which I believe in given instances to be of great value. I refer to the employment of hypodermoclysis in certain stuporous cases, as is practiced abroad, more especially by Pilcz of Vienna. Hypodermoclysis is obviously inapplicable to the stupor of catatonia or the stupor of melancholia; it is, however, undoubtedly applicable to the stupor of infection and exhaustion. Here it unquestionably stimulates elimination. I have on a number of occasions had the opportunity of employing this method in such cases with very satisfactory results. The procedure is unattended by risk and should, I believe, be more frequently practiced than it is. It has been carried out by Pilcz for years with marked success.

Another special indication in the treatment of mental cases is the production of sleep. There can be no doubt that this is one of the most important indications presented, and one that is often very imperfectly and half-heartedly met. Simple physiologic methods of inducing sleep, such as exercise, bathing, massage, the drip sheet, the taking of food, of hot milk, suggestion, placebos, may all fail and indeed do fail in a large number of cases. If the patient secures some sleep, say four or five hours out of the twenty-four, we may be justified, other things equal, in withholding sedatives. If, however, the insomnia is very pronounced and persistent, grave danger both to the physical and the mental condition of the patient may ensue. The mental symptoms may become more pronounced and grave exhaustion may supervene. Indeed, patients have been known to die from the want of sleep and the accompanying exhaustion. Further, a long experience with the milder forms of mental disease such as are treated outside of institutions, as well as with the early periods of the more pronounced forms, has convinced me that the prompt correction of sleep disturbances is of the utmost importance. Many patients in whom this matter is neglected become rapidly and markedly worse. Others, again, in whom it receives prompt attention, are often spared a prolonged or a grave attack. As we have just seen, physiologic methods often fail to induce sleep; what then are we to do, especially when the patient's need is urgent?

Of late years a prejudice has grown up in the mind of physicians as to the use of sedatives. This prejudice is often so strong, especially in institutions, as to lead to an utterly inadequate use of these remedies or even to their entire exclusion. This prejudice, I am convinced, has its origin in the following causes: First, it is a reaction against a former somewhat too free use of these remedies; secondly, it has its origin in an insufficient and often mistaken knowledge of their mode of action, and in an exaggerated fear of their harmful effects; thirdly, the prejudice has been distinctly fostered by the attitude of the lay public, and especially the lay press. The word "dope," a slang word of the slums, has in large degree replaced such words as "medicine" and "remedy." The word "dope" is not only used by the laity and the lay press, but, I am sorry to add, even by some physicians. The latter have, in a degree, encouraged an unscientific attitude toward sedatives that has worked injury to their patients. Drug habits cannot and do not ensue if the physician exercises a reasonable precaution. This may in private practice entail some difficulty, not, however, in institutions, for here the administration of the remedy given is completely under the control of the physician. Physicians in private practice are, in my observation, habitually exceedingly careful in prescribing sedatives. Many physicians do not prescribe them at all unless the medicine is to be given by a nurse to whose hands the control of the remedy is thus confided. Whatever may be said as to these details, however, there cannot be any doubt as to the necessity or propriety of their use under given conditions. To withhold them under given conditions is equivalent to withholding nitrous oxid during the extraction of a tooth or denying a patient the sleep of ether during a surgical operation. Further, just as skill and judgment are required in the giving of an anesthetic, so are skill and judgment required in the administration of sedatives.

Time will not permit us to consider more than a few general principles. An ideal remedy would be one which would induce a sleep approximating the normal sleep and which would be followed neither by physical depression or other unpleasant symptoms. A large number of sedatives are at present at our disposal and many of them fulfil, approximately at least, the above conditions. Recently Dr. Richard Eager[1] of the Devon County Asylum, at Exminster, England, has carefully reviewed the use of sedatives. He points out the necessity of procuring sleep in certain cases, and that physiologic methods often fail completely. He points out especially the necessity of procuring sleep in cases with depression that threaten to be cases of melancholia, and further, that many of the hypnotics that are used induce sleep which is like the natural sleep and are not attended by depression or unphysiologic effects, and he insists that patients every now and then die from the exhaustion which the want of sleep induces. Some medicines are comparatively harmless; others have cumulative effects. Some do not conduce to the formation of drug habits; others still are liable to do so, especially if prescribed recklessly.

Of course all physicians recognize that sedatives should not, save exceptionally, be used over long periods of time. Their obvious application is to secure the immediate relief of a distressing insomnia. Frequently after such relief has been secured the patient continues sleeping without the medicine, or under the influence of a placebo. In given cases, should this not be the result, the remedy should, notwithstanding, be from time to time suspended, and, if later a sedative again becomes necessary, an entirely different one should be given.

Insomnia as met with both in the neurasthenic states and in the course of the various mental diseases, is unquestionably toxic in its origin and is but one of the many symptoms expressive of the toxicity from which the patient suffers. Compared with this toxicity the action of sedatives is evanescent. Their effect on the nervous tissue is merely transient and no harm can come from their judicious application; indeed, incalculable benefit often follows their use.

Further, another and most important point remains to be considered. When drugs are used habitually, tolerance to their use, as we all know, is sooner or later established and an increasing dose is required to produce an effect. The establishment of this tolerance doubtless depends on the formation of antibodies; in the case of some drugs, for example, morphin, the formation of an antitoxin has been definitely proved.[2] This fact has, however, an added significance. Justschenko and other writers point out that under the use of sedatives, lipoid substances are increased in amount. Justschenko declares that biochemical investigations have shown that under the influence of sedatives, for example, in severe melancholias, there is an increase of cholesterin in the blood, and cholesterin is, as is well known, a powerful antitoxic and antihemolytic body. In other words, sedatives directly stimulate the formation of antibodies, and there can be no doubt that in their judicious use we have, in given instances, a valuable means of aiding in the recovery of our patients.

I will not discuss the detailed properties of the various drugs nor their detailed application; this time forbids. The facts can be obtained in any text-book such as that of Kraepelin or in such admirable articles as that of Eager[1] already referred to. A few general statements, however, may not be amiss. Personally I never use—or very rarely—the alcohol group of sedatives, which includes, among other things, alcohol, paraldehyd, amylene hydrate, chloral hydrate, and

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1. Eager, Richard: Jour. Mental Sc., July, 1914, p. 461.
2. Hirschlaff: Riedel's Berichte, 1904, p. 27, also Abstr., Jahresb. f. Neurol. u. Psychiat., 1904, p. 1228.

butyl chloral hydrate. Alcohol is sometimes given to promote sleep in persons suffering from neurasthenia; more especially in the form of beer or ale. The sleep so induced, however, is not apt to be prolonged, and besides the wisdom of prescribing alcoholic beverages for neurasthenics may well be questioned, and I have rarely so employed them. In the therapeutics of fully developed mental disease alcohol plays no rôle whatever. Of the other sedatives belonging to the alcohol group, all may be dismissed as no longer necessary since they have of recent years been displaced by other and more serviceable remedies. Perhaps an exception should be made in favor of paraldehyd. The latter has the great advantage of acting with the utmost promptness and certainty and at the same time of acting as a stimulant and not as a depressant. Its unpleasant odor and taste, however, make it difficult of administration save in alcoholic subjects, who take it very readily when it is suspended in whisky. It is therefore especially adapted to procuring a first sleep in alcoholic delirium and, because the sleep induced is short, some other and more slowly acting remedy may be given at the same time.

The sulphonal group presents several valuable sedatives; each of which has special advantages. Trional acts kindly and without depression or subsequent unpleasant after effects. Sulphonal acts slowly and is of special advantage when it is desired to procure a prolonged sleep. Like trional, its action is not accompanied by depression, but because it is slowly eliminated some hebetude may persist for some time after awakening following full doses. Tetronal closely resembles trional. Porphyruria, said to follow the too free administration of the sulphonal group, I have not met with.

The group of veronal, medinal, luminal and adalin appear to be especially valuable. Veronal in too free dose gives rise to a sleep that is too prolonged and is in some instances followed by heaviness and hebetude. Medinal (veronal sodium) is eliminated with great readiness; it acts very promptly, the sleep approximates the normal, there is no depression and no unpleasant after effect. Luminal, which is much lauded by Eager, I have little personal experience with, but it seems to be worthy of trial. Adalin appears to be an almost perfect hypnotic. The sleep induced is light and gentle and unattended by any concomitant or subsequent effects. It has the further advantage of being efficacious in relatively small dose, e. g., 5 grains; although not infrequently 15 grains are required.

The bromid group can be dismissed with the statement that they are not suitable for prolonged periods of time, and not as valuable, as hypnotics, as other remedies in our possession. Opium and its alkaloids also appear to have a very restricted application. Opium, however, is especially recommended by Eager in agitated melancholia. No drug habit follows its use in such cases, even when the administration is prolonged. Scopolamin is a drug of undoubted value. It is efficacious in producing quiet and sleep in even so small a dose as 1/400 grain, though commonly 1/200 or 1/100 of a grain are required. It has of late attracted renewed attention through its use in the production of the so-called "twilight sleep" in the obstetric clinic at Freiburg. Administered hypodermically together with morphin (1/100 of a grain of scopolamin and ⅛ of a grain of morphin) rapid sedation and sleep follow. The sleep is not profound, but the patient can be handled and submitted to various procedures without the slightest difficulty. Genito-urinary surgeons have time and again had recourse to this method in operations on the prostate gland in cases in which ether or chloroform are inadmissible. Some German physicians give a struggling patient a hypodermic injection of scopolamin and morphin previous to placing him in the continuous warm bath. This method seems to be better than Kraepelin's plan of giving such patients a 30 grain dose of sulphonal. No depression and no unpleasant after effects follow the administration of the combination of scopolamin and morphin. It is remarkable also that the effect produced by small doses is far greater than when either drug is used alone in full dose. If scopolamin be used alone in large dose, it may be followed by dryness of the mucous membranes. Hallucinations and even delirium are also said to follow its too free use. This, I am convinced, is rare. Finally, it should be added that such a thing as a scopolamin habit is unknown.

Other modes of treatment than those considered in this address do not differ from those applicable to internal medicine and need not detain us here. Further, glandular extracts, which now play a limited rôle, may possibly play a more extensive rôle in the future. It is to be hoped, too, that the science of serology will in due course yield us antitoxins and perhaps also other remedies of the nature of salvarsan, a consideration of which I cannot in this essay even touch on. I have merely attempted to outline the facts, the wonderful possibilities and the great promise of the future.

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THE EMPLOYMENT OF BORIC ACID IN DISEASES OF THE SKIN

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SAN FRANCISCO

Boric acid has a very extensive use in diseases of the skin, but it is almost always employed as an adjuvant. This subsidiary position, however, does not detract from its importance, but rather adds to it, as by its correct application in a multiplicity of ways the efficacy of the main therapeutic agent is often heightened. As, however, it is a subsidiary remedial agent, treatises on therapeutics and on skin diseases give it far less notice than its real usefulness demands.

Boric acid is a mild, non-irritating antiseptic. In fact, it is not only non-irritating; it is soothing and is used as a soothing lotion in the eye. In conformity with its real nature the powder feels smooth and unctuous. As in many instances an afflicted skin is irritated not only from an infection but also from the state of the system, the advantage of employing an antiseptic that is at the same time bland and soothing, is obvious, even if the antiseptic action is weak or only inhibitory.

Pure water, by increasing osmosis from the papillary layer of the skin, may act detrimentally, especially in superficial inflammations. When, however, boric acid is added to water it, like common salt, increases its tonicity and prevents this detrimental action. In this way a bland, soothing solution of approximately normal tension is secured, the action of which is especially beneficial when the skin is denuded of its horny epithelial covering and the papillary layer is exposed, as in catarrhal inflammations, such as eczema, or superficial dermatitis, as "poison oak." In such cases if a moist dressing is for some reason desired, a solution of boric acid often answers admirably.

ACNE

An initiatory soaking with a hot boric acid solution is often of great benefit in the local treatment of acne. For this purpose it is desirable to apply the solution hot and to use a large quantity of it, so that the heat will be retained for a considerable time. Three heaping tablespoonfuls of boric acid powder are added to the usual quantity of water used in washing—about 3 quarts. This makes approximately a 3 per cent. solution. The patient should then sit, leaning over the bowl, and soak the face well with towels wrung out of the hot solution. As the solution grows cooler, more hot water may be added. It is often advantageous so to soak the face for ten or fifteen minutes. It softens the epithelium and acts as an excellent detergent, removing the grease and many of the micro-organisms, and decidedly increases the efficiency of a resorcin or sulphur application.

PYOGENIC INFECTION OF THE SKIN

Pyogenic infection of the skin is a convenient term to employ for a number of different affections mostly caused by either staphylococci or streptococci. In many of these the susceptibility of the individual plays an important, even a dominant part, and the constitutional condition must be met by measures appertaining to diet and general medicine. Topically, boric acid and its preparations are of great value, but frequently, as before mentioned, in a subsidiary or adjuvant sense.

FURUNCLE

Moist heat together with a non-irritating antiseptic are the topical therapeutic indications in the primary stage of active congestion in furuncles. These indications may be met by employing gauze dipped in hot saturated (4 per cent.) solution of boric acid, and enveloping with oil silk to retain the moisture and the heat. This is similar to a poultice, but is not so good, as it is not so bland and does not retain the heat so well; it, however, is often sufficient, and is easier to apply. An admirable poultice for this purpose is made by mixing boric acid powder with starch paste. The preparation of this will be taken up later.

There are some special kinds of furuncles that deserve more detailed mention.

Furuncle of the edge of the eyelid, hordeolum or stye, is one of the most exasperating, painful, and it may be one of the most persistent of troubles. It begins as a little red point on the ciliary border, and in about three days a white center shows in the red swelling. It opens, a little core is expelled, and healing takes place. In about a week, at another part of the edge of the lid, another red point appears that goes through the same stages. At times, instead of styes coming singly, a number appear bordering both lids, and then the affection is most distressing indeed. Long ago Hardaway[1] pointed out that styes may be due to infection from the scalp, and that when seborrhea capitis is present it should also be treated. Furthermore, many of the patients, suffering from styes, have blepharitis ciliaris, which is frequently an expression of the same seborrheic habit.

In the treatment of styes I have usually come out fortunately by ordering persistent bathing and soaking for half an hour twice a day with warm saturated solution of boric acid, and after each soaking to rub in a salve of 1 per cent. red mercuric oxid in vaselin.

Suppurative folliculitis of the vibrissae of the nares is another pyogenic affection in which boric acid may be employed with advantage. This folliculitis is a most tantalizing affection, and is often combined with cracking of the mucous membrane at the anterior angle of the nares, constituting one of the causes of red nose. These lesions may also plague in another way, by furnishing a convenient entrance for the streptococci of erysipelas. An efficient manner of treating this folliculitis is to set before the patient a tin cup of saturated solution of boric acid, kept hot by placing it over the flame of a spirit lamp. The patient takes pledgets of absorbent cotton, dips them in the hot solution, and pushes them into the affected nostril, repeating this during ten or fifteen minutes till the tissues are well softened, and the crusts softened and loosened. Calomel, 12 per cent., or xeroform, 12 per cent. in vaselin, is then well rubbed in. This procedure may be repeated two or three times a day. Care must be taken both to soak thoroughly and anoint the fossae behind the nose tip, as these hollows are a favorite residence for germs in this affection. Epilation may or may not be necessary.

IMPETIGO CONTAGIOSA

Streptococcic infection of the skin when it appears as impetigo contagiosa frequently justifies its name of the impetuous disease, or the quick striker. Like all the streptococci, those that cause impetigo contagiosa love fluid, which they cause to pour out as serum from the papillary blood vessels. This sticky serum forms heavy crusts that constitute an excellent protection for the underlying anaerobic bacteria. One of the chief therapeutic indications is to remove these crusts without doing any damage to the inflamed skin. This may often be best accomplished by applying a boric acid starch poultice. The making of this poultice is a simple matter, but it is often the simple matters that are the most neglected. It is made in the following manner:

Take ordinary, common, lump, laundry starch and pulverize it. This pulverization is to be done before measuring. Dissolve one slightly heaping tablespoonful of the pulverized starch in two tablespoonfuls of cold water. Add to this one coffee cupful of boiling water, stirring rapidly until the mixture is a thick paste. To this paste add a tablespoonful of boric acid, free from lumps, and stir well until thoroughly mixed. Fold the warm jelly between layers of thin muslin or cheesecloth, and apply as hot as can be borne.

A good poultice should not be too thin or it will dry, nor too bulky, or it will run; it should be slightly less than a finger thick. In order to prevent the borders drying and sticking to the surface, they may be greased with vaselin, oil or zinc oxid ointment.

This poultice is not gummy like a linseed poultice, is cleaner looking and retains heat just as well. Besides the foregoing use, such a poultice has a multitude of applications, sometimes being employed hot, sometimes cold, as pointed out by Sabouraud. Sabouraud rightly objects to the disrepute into which, of late years, poultices have fallen, and rightly asserts that many of the objections emanate from men who slavishly follow a popular cry.[2] It is true that antiseptics, among those who are imperfectly grounded in bacteriology, assume many fantastic and doctrinal forms, and that there is no scoffer nearly so sneering as the one with imperfect knowledge.

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[1] Hardaway and Grindon: Cutaneous Therapeutics, Philadelphia, Lea and Febiger, 1907, p. 38.

When, by means of this poultice, the crusts are softened and loosened, they may be gently removed. This removal is often best accomplished by rubbing in a salve containing an appropriate antiseptic, such as ammoniated mercury. The following ointment is an excellent one for the purpose:

	gm.	
℞ Ung. hydrargyri ammoniati..	15	℥ ½
Ung. zinci oxidi............	30	℥ i

M. Use twice a day both to clean and dress the affected surface.

The real efficient antiseptic in the above is the ammoniated mercury, a remedy familiar to every skin clinic in which naturally streptococcic infections are among the daily visitors. The 10 per cent. ointment of the Pharmacopeia, however, is too stimulating, and the zinc oxid ointment both dilutes it and modifies its asperity.

As a general lotion for more widespread use in very scattered pyogenic infection of the skin, a saturated solution of boric acid in dilute alcohol serves admirably. It is harmless, it is clean and does not stain, and is not disagreeable in either appearance or odor, and because of the alcohol cutting the fat of the cutaneous surface, both the alcohol and the boric acid are permitted to act effectively as antiseptics.

PERLECHE

Perleche is another streptococcic infection, with a name that should be a delight to a philologist, as it is so closely connected with the etiology of the disease. It is derived from the French *lecher,* to lick; in fact, our word lick, the German *lecken,* is the French *lecher,* therefore it really is the lick disease. It is an infection in the corners of the mouth in infants. They constantly lick it and therefore keep it moist and in a favorable condition for the further growth and residence of these moisture loving micro-organisms. The affection may spread down on the outer surface of the lip and supramental fossa, where the little pink washrag of a tongue follows and entertains it. The persistent foci, however, remain in the corners of the mouth, where there is cracking and a characteristic grey veil-like covering. Pledgets of cotton wet in warm boric acid solution should first be industriously sopped into the corners of the mouth, and, if possible, drawn across the corners saddlewise and left there. After this is thoroughly done, the ointment composed of the ointments of ammoniated mercury and zinc oxid, previously recommended, is rubbed in.

PARONYCHIA

Another pyogenic infection due, in at any rate the majority of instances, primarily to streptococcic infection followed by staphylococcic fouling, is the painful affection in the neighborhood of the nails called runaround, paronychia or felon. When the affection has gone to the length of suppuration, it must be lanced, but before this occurs the process may be aborted by appropriate treatment. Both as an abortive measure, and as an antiphlogistic antiseptic measure, a dressing of a combination of boric acid and liquor alumini acetici may do excellent service. A lotion is made of:

	gm. or c.c.	
℞ Liq. alumini acetici.........	30	℥ i
Acid boric sol. sat.........	300	fl℥ x

M. Employ warm to bathe the finger, and also as a wet dressing.

Gauze soaked in this solution is wrapped about the finger, and then an amply fitting rubber finger-stall is drawn over it and retained by a not too tight bandage.

Liquor alumini acetici is among the best of the mild antiseptics, and is gradually coming into favor in surgical clinics.[3] It must be carefully prepared, and should be diluted about ten times. The water employed in its dilution is not an indifferent matter, as that containing carbonates throws down a heavy gelatinous precipitate of aluminum hydroxid. As the foregoing prescription is put up by a druggist, and with distilled water, this mischance is avoided.

ULCUS CRURIS

Ulcus cruris is almost always a streptococcic infection on a leg in which the resistance is lowered by circulatory disturbances due to varicose veins. These circulatory disturbances not alone lower the resistance, but they increase the susceptibility to streptococcic attack by increasing the amount of fluid in the tissue. As has been before mentioned, the streptococcus is an ardent lover of fluids. These are not the only causative factors in ulcus cruris, which has a most complicated etiology, but the mention of the edematous condition of the tissues and the presence of streptococcic infection serve to elucidate why these ulcers are so irritable, so watery, so heavily crusted, and why they have, when neglected, such a bad, penetrating odor. The irritable condition of the tissues precludes the employment of all strong antiseptics. Nothing will clear off the crusts, deodorize the lesions and inhibit the infection so well as a boric acid starch poultice. This naturally does not constitute the alpha and omega of treatment in this complicated and highly interesting disease condition, but it does form a most welcome help in some of its incident conditions.

Used either alone or combined with other powders, boric acid is very valuable in many discharging diseases of the skin. An excellent powder is made of equal parts of boric acid and talc, or of equal parts of starch, zinc oxid and boric acid.

The boric acid ointment of the Pharmacopeia contains about 8 per cent. of boric acid, while Lister's ointment is much stronger—about 16 per cent. Boric acid ointment is an excellent non-irritating preparation with a multitude of uses. It is an ointment that, more generally than any other, is well prepared, and this is a point of importance when the druggist who is to put up a prescription is not known, as ointments are often wretchedly made. In seborrheic conditions this ointment will sometimes agree when those more usually employed fail.

The presence of boric acid in a great number of proprietary remedies and pharmacopeial compounds is also a proof of its usefulness as a topical application.

It is well, occasionally, to review what help we may receive from the humbler members of our Pharmacopeia, as they sometimes may aid us when the more dramatic ones fail. The practice of medicine is the study of life, and life is composed of little things, and these little things we cannot despise. It was a favorite saying with the late Professor von Leyden: "For the patient there are no small things."

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[2] Sabouraud, R.: Le Cataplasme de fecule en dermatologie, Les Entretiens Dermatologiques, 1913, p. 415.

[3] Meyer and Gottlieb, in their admirable book on therapeutics, Die experimentelle Pharmakologie, Berlin, 1911, p. 464, mention aluminium acetate (liquor alumini acetici, essigsaure Tonerde), saying that it stands on the borderline between astringents and antiseptics, and that it is coming more into use as a mild antiseptic in wounds.

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THE SIGNIFICANCE OF TUBERCLE BACILLI IN THE URINE*

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The significance of tubercle bacilli in the urine may or may not be grave. I shall consider it first, from the point of view of discovery of tubercle bacilli in the routine examination of the urine of tuberculous patients; and, secondly, from that of finding tubercle bacilli in the urine of a patient with symptoms, more or less pronounced, referable to the urogenital tract.

ACID-FAST BACILLI

Before discussing these points, however, I would like to say a word about the acid-fast organisms and their differentiation from tubercle bacilli.

The cold blooded tubercle bacilli, while possibly slightly infectious for man, and while it is possible that they might be excreted through the kidneys when injected into the body or circulation in large quantities, can in most patients be disregarded. Lepra bacilli and acid-fast streptothrices (actinomycosis) play here a small part also. The milk and butter bacilli and the timothy hay bacilli may possibly be excreted through the urine, for the work of Calmette and Ravenel has shown that in dogs tubercle bacilli in a fatty emulsion are readily absorbed from the intestine and pass through the thoracic duct into the blood. These organisms, therefore, must be borne in mind, but their occurrence in vesical urine must be rare. In all staining methods the acid-fast organisms which can occur in distilled water must be excluded.

SMEGMA BACILLI

Of all organisms, however, the most important for us in relation to differential diagnosis is the smegma bacillus. Careful work has shown that no staining methods differentiate tubercle and smegma bacilli. Recent work further reveals the fact that smegma bacilli are difficult to cultivate directly from the patient. In fact, some hold that real smegma bacilli cannot be cultivated; that smegma contains two varieties of acid-fast organisms, only one of which can be grown. It is of some importance to know the frequency with which smegma bacilli occur in nature. Brereton and Smith[1] in 126 insane or uncleanly patients found red staining bacilli in 85 (67.5 per cent.) after decolorization by 25 per cent. sulphuric acid, while they occurred in only 19 (22 per cent.) of these patients after methylene blue had been used as a counterstain after decolorization. They were present in 13 per cent. when decolorized by acid alcohol or Labarraque's solution (in 16 (13 per cent.) of 119 when decolorized by acid alcohol and in 16 (13 per cent.) of 117 when decolorized by Labarraque's solution). In a second series of 20 men of ordinary cleanly habits, smegma bacilli were present in 13 (65 per cent.) after the use of sulphuric acid only (25 per cent.), and 2 (10 per cent.) after counterstaining.

Smears from the anterior urethra (fossa navicularis) were made by Young and Churchman[2] in 24 patients and smegma bacilli found in 11 (46 per cent.), while of 6 patients, smegma bacilli were found in the urine of 5. The urine in the bladder at necropsy, or smears from the bladder wall, were negative in 50 cases. The posterior urethra was negative for smegma bacilli in the 6 cases examined. This work led Young and Churchman[2] to advise thorough cleansing of the penis and rinsing with large quantities of water, as well as careful irrigation of the anterior urethra. The urine they say should be passed in three glasses and only the third used in examination for tubercle bacilli. This technic, they believe, will fully exclude all smegma bacilli from the urine and acid- and alcohol-fast bacilli present can be considered tubercle bacilli. In women, catheterization of the ureters must be practiced.

The differentiation of tubercle and smegma bacilli by methods of cultivation are said to be very unsatisfactory on account of the difficulty in getting smegma bacilli to grow. Brereton and Smith question whether the true smegma bacilli have ever been successfully cultivated. Mr. Petroff and I have found out that the so-called smegma bacilli, which grow luxuriantly, cannot resist treatment with normal sodium hydroxid (4 per cent.) solution for fifteen minutes, which procedure affects tubercle bacilli little if at all. Of course all differential methods, dependent on cultivation of an organism, possess the inherent weakness that the organism may be dead. This argument was advanced as the explanation of the inability of all observers to grow tubercle bacilli directly from the feces, or, indeed, to infect guinea pigs with the tubercle bacilli contained in the feces. Since both these ends have been accomplished, the foundation for such arguments has been materially weakened. Of course until a satisfactory method for cultivating the true smegma bacilli has been discovered, it is useless to base any diagnostic methods on a procedure which depends on their growth; but Petroff's new "egg-meat-juice-gentian-violet" medium will enable us to grow tubercle bacilli readily. If at the end of ten days or two weeks no growth takes place in a tube which has been inoculated with a sediment containing acid-fast bacilli, we are almost justified in concluding that they are not tubercle bacilli.

VALUE OF STERILE CULTURES

In 40 out of 42 cases of urogenital tuberculosis Suter[3] obtained no growth on inoculation into the usual mediums of the carefully collected urine. The presence of symptoms of cystitis and the absence of growth on inoculation of catheterized urine into the ordinary mediums is, he holds, evidence of renal tuberculosis. Albarran looks on the absence of microorganisms in a "purulent" urine in the same light.

FREQUENCY OF EXAMINATIONS AND COLLECTION OF SPECIMENS

He who would base an opinion on the presence or absence of tubercle bacilli in sputum on the examination of one specimen would be ridiculed. After thinking it over we would all, I am sure, come to the same conclusion in regard to the presence of tubercle bacilli in the urine. That they may occur for a while and then disappear entirely, cannot be denied. The occurrence of so-called "showers" of tubercle bacilli is common knowledge. Even good laboratory men, however, do not always bear this in mind and do not hesitate, in some instances, to deny the presence of tubercle bacilli in the urine after one or two examinations. The same care should be exercised in collecting specimens of urine as of sputum. The patient should be warned that whenever any unusual symptoms supervene he should submit two or three specimens of urine. Such symptoms embrace increased diurnal frequency of micturition, cloudiness of the urine when it is passed, and any unusual sensation connected with the genito-urinary system.

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* Opening of a discussion at the mid-winter meeting of the American Sanatorium Association, Dec. 15, 1914.

[1] Brereton and Smith: Am. Jour. Med. Sc., 1914, cxlviii, 267.

[2] Young and Churchman: Am. Jour. Med. Sc., 1905, cxxx, 52.

[3] Suter: Baumgarten's Jahresb., 1903, xix, 466.

PRACTICAL METHOD OF EXAMINATION OF THE URINE

The most satisfactory method of finding tubercle bacilli in urine is probably that used by Mr. Petroff at the Adirondack Cottage Sanitarium, as follows:

Add to the urine to be examined, which has been acidified with 30 per cent. acetic acid, 2 per cent. of its volume of a 5 per cent. solution of tannic acid. This urine is then put in the ice-chest for twenty-four hours. The precipitate can then be centrifugalized, redissolved with dilute acetic acid, centrifugalized and the sediment placed on slides and stained, or the first precipitate treated with normal sodium hydroxid solution and cultivated.

CONTROL STAINING

A simple point that may aid in diagnosis might be mentioned. The bacilli to be stained may be placed on the same slide with a few typical tubercle bacilli which have been immersed in urine and the two smears subjected to the same methods of decolorization. If the questionable bacilli are decolorized when the control tubercle bacilli still retain the red stain, it is presumptive evidence that they are not tubercle bacilli.

ANIMAL INOCULATION

Many contend, however, and I must confess to a similar tendency hitherto myself, that when acid- and alcohol-fast bacilli are found in urine the sediment from large quantities of freshly collected urine should be inoculated subcutaneously into several guinea pigs, which should become tuberculous before a diagnosis of tuberculosis is made.

I saw several years ago a young married man, about 28, who while perfectly well, before the consummation of marriage, for eugenic purposes consulted a physician. His urine contained albumin and a specialist found tubercle bacilli in the urine from the right kidney. A second specialist could not make such a diagnosis, but suspected it, and referred the patient to me for general treatment. His lungs were negative. We centrifugalized a large quantity of urine (not obtained by catheter) and found a great number of acid- and alcohol-fast bacilli, like typical tubercle bacilli. Inoculation of this sediment into guinea pigs produced no tuberculosis. He gained in every way and returned to work, but about six months later developed a tuberculous epididymitis and the epididymus was removed. I question now whether his right kidney is not tuberculous.

A. DISCOVERY OF TUBERCLE BACILLI IN THE URINE ON ROUTINE EXAMINATION

The discovery of tubercle bacilli in the urine of an individual without any symptoms referable to the genito-urinary tract suggests much of interest. For tubercle bacilli to be present in the uncontaminated urine they must have, in some manner, gained entrance into the body. It is to-day well established that they can enter the body and leave no discoverable lesion at the portal of entry. It would be but a step farther to go to picture that, if this can occur, their exit from the body without discoverable lesion can also take place. Indeed, this would seem to occur through the liver, for Calmette has found tubercle bacilli in the bile of experimental animals, which had, as far as I recall, no discoverable lesion in the liver or gall tract. If the liver permits the transmigration of tubercle bacilli, it would appear from analogy that the kidney might also. That this can take place in man appears now to be settled. A case has been reported by Rist and Kindberg[4] in which a patient with asystole of aortic origin died of an intercurrent erysipelas. No tubercle bacilli had been found in the sputum, even after animal inoculation, but on two separate occasions injection of urine had caused tuberculosis in guinea pigs. A necropsy revealed an apical tuberculous scar in one lung, but in no other organ could any tuberculosis be found. Many fragments of organs, including the kidneys, were introduced into guinea pigs without producing tuberculosis. The explanation advanced by the authors is that the tubercle bacillemia was taken care of by the kidneys, which excreted or permitted the tubercle bacilli to pass. Kuester had a somewhat similar case in which occurred convulsions, hemorrhage from the urinary organs and tubercle bacilli in the urine, while both kidneys were found free from tubercle.

PATHOLOGIC CLASSIFICATION OF TUBERCULOUS RENAL INFECTION

At this point I might mention the pathological classification of Jousset.[5] He divides tuberculous renal infection into three groups:

1. Those with specific pathologic changes:
   a. Massive tubercles (cheesy). (Surgical.)
   b. Miliary tubercles (this includes the vast majority found at necropsies).
2. Those with non-specific pathologic changes varying from hyperemia to interstitial changes.
3. Those without pathologic changes. No variations from normal or a very slight epithelial lesion.

While speaking of pathology, I might say that experimental work all tends to show that in the genito-urinary tract the infection is descending and not ascending. A few clinical cases suggest, however, that ascending renal tuberculosis can occur when tuberculous ulceration takes place about the mouth of the ureter and the urine is partly or completely dammed back.

Considerable work has been done in studying the urine of patients with pulmonary tuberculosis, to discover whether or not it contained tubercle bacilli. From what has been said it is readily seen that the only results to which no objections can be offered are those in which animal inoculation has been practiced.

In nine of eighteen cases of severe pulmonary tuberculosis, Foulerton and Hillier[6] found tubercle bacilli in the urine by inoculation into guinea pigs, but not by microscopic examination. Six of these nine died later and the kidneys showed no signs of tuberculosis.

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[4] Rist and Kindberg: Presse méd., 1914, p. 177.
[5] Jousset: Baumgarten's Jahresb., 1904, p. 646.
[6] Foulerton and Hillier: Brit. Med. Jour., 1901, ii, 774.

Bertier[7] believes that when the tuberculosis is at a standstill, tubercle bacilli occur less frequently in the urine, but agrees with the finding of Foulerton and Hillier that bacilluria can occur without renal changes.

Cunningham[8] found six out of sixty-six patients with pulmonary tuberculosis to yield urine containing tubercle bacilli on animal inoculation. Bernstein,[9] repeating this work, found ten positive cases in 100 patients with pulmonary tuberculosis without symptoms referable to the urinary tract. Six of these patients had no albuminuria and three no cystoscopic changes, but in three the urine contained pus cells.

In 104 collected cases, thirty-seven among children, positive results were obtained on inoculation in eleven, or 10 per cent. One or more of these, however, may have had renal tuberculosis. In 52 cases at the Adirondack Cottage Sanitarium positive results were noted in two instances, both ill patients, one of whom has recovered and one has died. The patient who recovered showed urinary symptoms of some renal disease, while the patient that died showed none. None of these patients at the Adirondack Cottage Sanitarium presented any symptoms referable to the genito-urinary tract.

As far as I can determine, the presence of tubercle bacilli in the urine of these patients who present no discoverable pathologic changes in the genito-urinary tract does not necessarily signify clinical renal tuberculosis, for tubercle bacilli may pass into the bladder without injury to the kidney.

B. TUBERCLE BACILLI IN THE URINE OF PATIENTS WITH SYMPTOMS REFERABLE TO THE URO-GENITAL TRACT

The presence of symptoms referable to the uro-genital tract gives a very different significance to discovery of tubercle bacilli in the urine. Without question tubercle bacilli in the urine come most frequently from the kidney, and for this reason, as well as for the fact that vesical tuberculosis is most frequently secondary to renal tuberculosis, I shall at first speak of renal tuberculosis.

FREQUENCY OF RENAL AND PULMONARY TUBERCULOSIS

Renal tuberculosis is not rare in patients with pulmonary tuberculosis. Fischer[10] found at necropsy histologic tuberculous changes in the kidney of 50 (67 per cent.) of 74 cases of chronic pulmonary tuberculosis. Walsh[11] found tuberculous changes in the kidney of 35 (58 per cent.) of 60 patients dying of pulmonary tuberculosis. Posner[12] discovered 25 per cent. of renal tuberculosis in 519 necropsies on subjects with pulmonary tuberculosis, while Israel[13] noted that 50 per cent. of his necropsies on renal tuberculosis revealed pulmonary tuberculosis as well, and Kelynack 70 per cent. When it is considered that uro-genital tuberculosis is practically always hematogenous and secondary to some other tuberculous foci, however slight, and that the vast majority of the so-called "primary cases" are only those in which the secondary overshadows the primary focus of infection, such figures are not astonishing.

DO TUBERCLE BACILLI OCCUR IN THE URINE BEFORE SYMPTOMS ARISE?

Whether tubercle bacilli occur in the urine before symptoms develop has not been proved, but from the foregoing statements I believe that it is not improbable that tubercle bacilli may exist at infrequent intervals in the urine long before any symptoms occur. This, of course, raises the question of the significance of the presence of tubercle bacilli in the urine without symptoms; and while they can occur without renal changes, I believe it is far safer for us, after a negative roentgenogram, to keep the patient under observation for several years.

THE TIME OF DIAGNOSIS

The symptoms that suggest renal involvement in a person hitherto healthy are usually rather well marked when he consults a physician. Of 212 patients at the Mayo Clinic, 71 per cent. had a duration over one year, 17 per cent. over five years and 6 per cent. over ten years. Only 10 per cent. applied with a duration of disease of less than six months (Braasch[14]). When a patient with tuberculosis develops albuminuria, renal tuberculosis should be thought of at once, and it has long been our custom at the Adirondack Cottage Sanitarium to search the urine of such patients for tubercle bacilli and to inoculate the sediment into a guinea pig. The general symptoms of tuberculous poisoning can in these cases be easily attributed to the tuberculous condition present elsewhere. It must not be forgotten that renal tuberculosis is nearly always a hematogenous infection, secondary to a more or less veiled tuberculosis in another part of the body. The diurnal irritability may in such patients be explained by the increased amounts of milk and water taken. The blood pressure is not raised.

The history of a case in which I was at fault may possibly be of assistance to others:

> The patient, who was very nervous, had been under my care for some years for an extensive pulmonary tuberculosis. He had complained at different times of slight malaise and of discomfort or pain in the lumbar region. His urine, previously normal, first showed a trace of albumin and a few granular casts in June, 1911. In August there was pus and the reaction was acid. This continued, and two or more inoculations were made into guinea pigs, which developed no tuberculosis. In February, 1912, he complained of increased expectoration, some premature systoles, but said he had had no symptoms from his kidneys. In April, 1912, another guinea pig was inoculated and developed tuberculosis. Tubercle bacilli, which had not been found before, then appeared in the urine and were found by catheterization to come from the right kidney. The left kidney was normal. Cystoscopy showed a slightly affected bladder, with some congestion at the right ureteral orifice. The kidney was removed in June, 1912, and found extensively involved, as well as the ureter. The wound was closed, but broke down and healed finally about December, 1913.

This case is a good example of what may occur when one waits for tubercle bacilli to appear in the urine. Roentgen-ray picture might have been of considerable assistance.

THE URINE IN RENAL TUBERCULOSIS

Pyuria, with an acid urine, hematuria, pain referred to the kidney, a nodular enlargement of the epididymus or prostate, are all of great importance in diagnosis and should lead to the repeated examination of the urine for tubercle bacilli. Here, however, as in the sputum examination, a positive finding far outweighs a negative. I have spoken of the "showers" of tubercle bacilli which may occur at infrequent intervals in the urine. On the other hand, we must not forget that involvement of the ureter may lead to its closure, a procedure which performs, so to speak, autonephrectomy. A tuberculous kidney may, therefore, have no opening into the bladder and the tubercle bacilli are dammed up.

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[7] Bertier: Quoted in Tuberculosis, Berlin, 1914, xiii, 313.

[8] Cunningham: Boston Med. and Surg. Jour., 1911, clxv, 827.

[9] Bernstein: New York State Jour. Med., 1914, xiv, 88.

[10] Fischer: Zeigler's Beitr., 1909, xlvii, 372.

[11] Walsh: Report Phipps' Institute, 1904-5, ii, 151.

[12] Posner: Ztschr. f. Tuberk., 1901, ii, 139.

[13] Israel: Quoted in Cornet, Die Tuberkulose, 1907, p. 1211.

[14] Braasch: Interstate Med. Jour., 1912, xix, 863.

A CASE OF AUTONEPHRECTOMY

A case reported by Renton[15] is of considerable interest in this connection. A man, aged 27, giving a history of marked vesical symptoms for three or four years, very ill and thin, without any recollection of pain in the renal regions, showed on cystoscopic examination a greatly retracted bladder, lined with a white caseous-looking deposit. No tubercle bacilli were found in the urine. Ten days later he died. On one side autonephrectomy had taken place; on the other side the kidney was tuberculous and largely destroyed. The bladder was completely covered by caseous tubercle bacilli. To think that a good man could find no tubercle bacilli in the urine of such a patient sounds a note of warning for us all. But some excellent men have failed to find tubercle bacilli in 50 per cent. of their cases, and others have discovered them only in 20 to 40 per cent. Tubercle bacilli may occur, however, in the urine only at rare intervals for several years, and when constantly present would indicate to me that if they come from the kidney a rather extensive ulceration has occurred.

THE URINE IN ACUTE MILIARY TUBERCULOSIS

It is of interest to note the occurrence of tubercle bacilli in the urine in cases of acute general miliary tuberculosis. Churchman[16] apparently believes that tubercle bacilli occur in the urine of nearly every case of this type, while they may be difficult to find in the sputum.

RADIOGRAPHY

Radiography[17] is probably of value in diagnosis only when the renal tuberculosis has reached an advanced stage, and in one of the cases just mentioned might have been of great value.

SPECIAL EXAMINATIONS

When in the urine of a patient who has diurnal irritability, slight albuminuria, slight pyuria, lumbar pain, with or without hematuria or nodular enlargements in the epididymus or prostate, tubercle bacilli are found, a diagnosis of tuberculosis of the genito-urinary tract should be made and an endeavor to exclude renal tuberculosis attempted. A careful manual examination of the epididymus, spermatic cord, prostate, seminal vesicle and kidneys is called for. A cystoscopic examination should be performed by an expert. Buerger, of New York, has recently found that a slight edematous puffiness at the orifice of a ureter is an indication of renal tuberculosis on that side, and has shown that the edematous tissue may contain tubercles. Catheterization of the ureters will show whether one or both kidneys are involved. It is usually unilateral at first. Functional tests will prove the efficiency of the affected and unaffected kidneys. It must not be overlooked that the enlarged kidney may be the one that functions.

TREATMENT

Before closing I might add a word about treatment. I have long advocated for all active, and for any tuberculous process for a time, functional rest. I believe it is impossible to give a tuberculous kidney functional rest. In the majority of instances I believe this seriously affects the chances of cure, though when a slight tuberculous ulceration occurs in the pelvis of the kidney, which I believe is rare, I can see no reason why it might not heal. For this reason it seems to me that, *theoretically,* renal tuberculosis of any degree should be treated by nephrectomy. Only twenty-five years ago such advice was violently opposed, but to-day conservative surgical opinion is in favor of this treatment and many believe that tuberculin, the hygienic-dietetic treatment, or, in fact, treatment by any medical means, has little to offer, as extension of the disease to other parts may take place during such treatment. After nephrectomy, however, tuberculin is of great value.

COMPARISON OF MEDICAL AND SURGICAL TREATMENT

The report of Wildbolz[18] (1912) on 316 cases of renal tuberculosis treated by non-surgical methods is enlightening. Of these patients 70 per cent. died within five years and only 10 per cent. are alive more than five years after the commencement of the disease. Only one case was well in every respect. Compare this with the results at the Mayo Clinic where nephrectomy was practiced. (Braasch.) The operative mortality was 2.9 per cent. of 203 cases. Excluding recent and untraced cases, we have 142 to be considered of which 98 or 69 per cent. were well or greatly improved more than one year after operation, while 13 per cent. had no relief from the vesical symptoms. When it is considered that renal tuberculosis in nearly 90 per cent. of all cases attacks one kidney first, the danger of delay in operation is evident.

SPONTANEOUS HEALING

Spontaneous healing has been said to occur but when Albarran challenged the French surgical society to produce one such case, none was forthcoming.

Elkhorn[19] has reported a case of so-called spontaneous cure. In 1901 the patient had pronounced symptoms of renal and vesical tuberculosis, with numerous tubercle bacilli in the urine. In 1907 he was apparently perfectly well, but in 1909 while in the hospital for treatment for worms, with a normal urine, cystoscopy showed a pyonephrosis. At operation the kidney was found totally destroyed and the pus-like material produced no tuberculosis in guinea pigs. I have gone into the details of this case to illustrate how "spontaneous healing" usually occurs in renal tuberculosis. The kidney is destroyed, becomes a pultaceous mass, the ureter is closed and the symptoms may, as in this case, disappear. I believe that tubercle bacilli were exceedingly rare in the kidney sack, or indeed may have entirely disappeared.

The bladder is involved in 80 per cent. of all cases, but at first the lesion may be slight or the symptoms partly reflex. After nephrectomy the vesical disease usually clears up unless it has advanced too far, when the condition is exceedingly deplorable and difficult to relieve.

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[15] Renton: Brit. Med. Jour., April 14, 1914, p. 811.

[16] Churchman: Am. Jour. Med. Sc., 1914, cxlviii, 722.

[17] Krotoszyner, M.: Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography, THE JOURNAL A. M. A., Dec. 5, 1914, p. 2006.

[18] Wildbolz: Ztschr. f. Urologie, First Suppl., 1912, pp. 29-74. (Quoted by Braasch.)

[19] Elkhorn: Baumgarten's Jahresb., 1910, xxvi, 490.

THE URINE IN TUBERCULOSIS OF THE GENITAL TRACT

The occurrence of tubercle bacilli in the urine of patients with tuberculosis of the epididymus, the seminal vesicles, or the prostate, has never been thoroughly investigated. Marwedel found tubercle bacilli in the urine in four cases of prostatic tuberculosis. My own experience is very limited, but in three cases no acid-fast rods were found in the urine. When the prostate or seminal vesicles are involved, massage may produce a secretion containing tubercle bacilli. The constant presence of the occurrence of tubercle bacilli in large numbers would suggest tuberculosis of the urinary tract as well.

Fortunately the diagnosis of tuberculosis in the genital tract rarely depends on the discovery of tubercle bacilli in the urine. An enlarged globus major with a thickened or slightly enlarged seminal vesicle or irregular or nodular prostate in a patient with a preexisting tuberculosis can be diagnosed as tuberculous. Barney's[20] paper on this subject should be consulted.

CONCLUSIONS

1. No staining method differentiates absolutely tubercle bacilli from smegma bacilli, but cultural methods may aid greatly.
2. Animal inoculation, with the production of tuberculosis, is an absolute test, but of value only when positive.
3. The same care about the collection of urine should be exercised as about the collection of sputum.
4. Tubercle bacilli can be excreted through apparently normal kidneys.
5. Radiography may aid in the quick detection of caseous foci when the urine contains no tubercle bacilli.
6. Spontaneous healing is often fictitious.
7. The final, and often the best, treatment for renal tuberculosis on diagnosis, is nephrectomy followed by the use of tuberculin.
8. Tubercle bacilli occur in the urine in genital tuberculosis usually late in the disease and are consequently of little aid in diagnosis of the condition.

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[20] Barney, J. D.: Ultimate Results of Genital Tuberculosis in the Male, The Journal A. M. A., Dec. 26, 1914, p. 2274.

Infectious Diseases an Unnecessary Waste.—Sir Frederick Treves believes that the time will come when hospitals for infectious diseases will be empty and not wanted. This is to be accomplished by hygiene. The fight is against millions of microbes, and the weapons are sanitary regulations, municipal government, the sanitary inspector and the health officer. The mystery of the ancient doctor, with his long words and extraordinary prescriptions, is passing away. The multitude of shelves of bottles which surrounded lives also is passing away and being replaced by simple living, suitable diet and plenty of sun and fresh air. The time will come when it will be as anomalous for persons to die of scarlet fever, typhoid, cholera or diphtheria as for a man to die of a wolf's bite in England. Personal hygiene is only beginning to be generally exploited. It is manifest destiny that a wise economy of vitality will sooner or later be practiced. Waste of vital resources is as irrational as waste of natural resources. Neither is inexhaustible and both must be conserved. Thoughtlessness and ignorance are the reasons for the appalling waste of both now going on.—Irving Fisher, "Report on National Vitality."

FAMILIAL SYPHILITIC INFECTION IN GENERAL PARESIS [*]

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In view of the fact that so little definite information concerning the importance of familial syphilitic infection in paresis has been brought before the American medical public, it has been thought desirable to present briefly certain observations which we have been able to make in this connection during the past three years.

The material on which our observations have been made includes, first, fifty-five clinically unquestionable cases of general paralysis in married individuals admitted during this time in which we have been able to test the presence of syphilitic infection in the other mate, and secondly, eighty-six cases in which the anamnesis concerning intimate family matters of absolute sterility, pregnancies with early abortions, total number of living-born children, with additional abortions, miscarriages, etc., could be accepted without question.

We have been able to examine the blood serum of the conjugal mate in fifty-three married paretics. Seventeen, or 32.7 per cent., of these cases showed a positive Wassermann reaction. Although this figure is sufficiently high to be striking, it yet does not represent the whole situation. One wife, acknowledging a severe infection following a lip chancre, had had careful treatment and presented at the time of our examination a negative Wassermann reaction. The first wife of a patient, whose second mate now has a strongly positive reaction, herself died of syphilitic disease. Of two female paretics, the husband of one preceded her in the development of paresis by about one year, while the husband of the other died of tabes about two years before. Since both of these husbands must have had syphilis, they should be added to the total. Although there are other possible factors, such as, for example, a wife showing a repeatedly negative Wassermann reaction and yet a history of repeated abortions without living children, or where the wife has a negative reaction but with children showing a positive Wassermann, which would justify assuming an additional number to swell this figure, at the present time we will add only these unquestioned cases. These additions show that in the families of fifty-five paretic patients there is a total of at least twenty-one mates infected with syphilis.

Separating this group into the two sexes, we find that in forty-nine cases in which the husband is paretic, seventeen wives are infected with syphilis; in six cases in which the patient is a woman, there are four husbands who are known to have syphilis.

While these figures are high, they are not greatly higher than other investigators have found and, as already suggested, probably underestimate rather than exaggerate the real situation. In a study of fifty-four cases of married paretics Plaut and Göring[1] found the other mate showing a positive Wassermann reaction in 32.6 per cent., a slightly smaller number than our figures of 38.18 per cent. Hauptmann[2] includes among forty-three cases where he investigated whole families serologically, eighteen cases of paresis in which he found a positive Wassermann in twelve mates, or the enormously high figure of 66⅔ per cent.; but, inasmuch as he picked these cases for a special purpose and did not take them as they came, as in Plaut and Göring's study and in our own, this figure does not concern us.

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[*] From the Psychiatric Clinic, University of Michigan.

[1] Plaut and Göring: München. med. Wchnschr., 1911, No. 37, p. 1959.

[2] Hauptmann: Ztschr. f. d. ges. Neurol. u. Psychiat., 1912, viii, 36.

The number of these infected mates who had previous knowledge of any infection, or who could tell us of any suspicious signs of secondaries, was the extremely small figure of two. Only one of them had had any antisyphilitic treatment. The matter of regularly mild or no skin and mucous membrane lesions appears to be about as common as similar observations on paretics themselves.

At the time these paretic patients entered the hospital, excepting the two where the other mate was known to have already had paresis and tabes, respectively, there was only one case in which ordinary clinical methods, such as could be used in examining a visitor, gave sufficient grounds for assuming organic disease of the central nervous system in the conjugal mate. This was in a wife with the Wassermann reaction on her blood strongly positive, apparently regularly moderate and occasionally excessive in her alcoholic habits, who showed a slightly sluggish reaction of her pupils to light and unequally diminished knee jerks. She showed some difficulties in her speech, an ataxic tremor in her writing, mild defect in retentive memory, spreading of impulses through her facial muscles under mild emotion, and some difficulties in solving involved mathematical tests. Though one appears justified in making a clinical diagnosis of conjugal paresis in her case, yet in view of her showing signs of mild alcoholic intoxication on each of two visits, in itself a very significant fact, until we shall have been able to examine her cerebrospinal fluid we shall not include her further in our statistical consideration.

It so happens that in our material we are quite certain in each case which mate was infected with syphilis before marriage, and from now on in this paper that individual will be spoken of as the infecting member. In only three cases was the woman the first infected; in two of these the serum examination on the husband was negative, while in the third the reaction was positive.

The relation of already developed metasyphilitic disease in the other mate is interesting. In one case both mates were paretic; in the other case the original infecting mate was tabetic, with the infected member paretic. How many metasyphilitic mates should we expect? This query leads us immediately into the big question of the existence of a lues nervosa, but it is well perhaps merely to state the results of some other careful observations. Mattauschek and Pilcz,[3] from observations on 4,134 army officers infected with syphilis between 1880 and 1900, found 4.67 per cent. to have developed paresis by 1912 and an additional 1.6 per cent. to have developed tabes, a metaluetic total of 6.27 per cent. These figures concern, however, a rather specialized group and one exposed to many of the factors supposed to tend to metasyphilitic disease. Pick and Bandler found that among 2,066 syphilitics coming to the Prague Skin Clinic during 1879-1899, twenty-eight had become paretic in 1904, a percentage of 1.3. O. Fischer[4] separates these into the two sexes and shows that among 1,178 men 25 had paresis and 12 tabes and among 888 women 3 had paresis and 2 tabes, or 3.7 per cent. of the men and 0.55 per cent. of the women had in that interval developed a metaluetic disorder. What proportion of these had obtained their syphilis in the first place from one who had, or later developed, a metaleutic disorder is unknown. In his own 500 cases of paresis Fischer had 395 married individuals. Among the 319 men 1 wife developed paresis and 2 tabes, while among the 76 women 5 husbands had paresis and 2 tabes; that is, a total of 10 metaluetic individuals, or 2.5 per cent. of the infected mates developed some metaluetic condition. Mönkemüller among 741 married paretics found 18 cases, or 2.14 per cent., of conjugal metaluetics. These figures, even when applying only to the cases of conjugal paresis, 6 in Fischer's cases and 14 in Mönkemüller's, are considerably higher than Hannard and Gayet[5] found among 2,429 married paretics in two French institutions where only 23 mates developed conjugal paresis.

In our material, starting with 51 metaluetic husbands, whom we are justified in assuming to have been the infecting agents, and of whom we grant that possibly one was only a tabetic, we find that among 19 infected wives 2 have already developed general paralysis. In this smaller number of cases the percentage of wives to have already developed paresis is 3.9 per cent. when figured on the entire number, but when figured on the number of wives shown by the Wassermann reaction to be infected with syphilis, it reaches the astounding figure of 10.5 per cent. It so happens that this figure agrees exactly with the percentage Fischer reaches in studying his 76 female paretics, where he assumes, rightly or wrongly, that all these wives got their syphilis from their husbands after marriage.

We have further been able to study the matter of sterility and the number of abortions and living-born children in 86 cases in which the accuracy of the anamnesis, furnished by the wife or husband of the patient and confirmed in many cases by the patient, could be definitely depended on. The conditions found are clearly illustrated in the accompanying table.

DATA CONCERNING FERTILITY IN PARETIC MARRIAGES

	Total Number	Sterile Completely	Abortions Only	Total Number of Abortions	Living-Born Children
Male G. P...	76	22	10	43	110
Female G. P.	10	6	1	1	13
Total	86	28	11	44	123

This table shows that of 86 marriages among paretics, 39, or 45.4 per cent., were absolutely childless. Of this number 28 marriages, or 32.5 per cent., were completely sterile, while the additional 11, or 12.7 per cent., resulted only in abortions. This total number agrees almost exactly with Heubner's figures of 45.7 per cent. of childless marriages, although his percentage of completely sterile marriages is about 7 per cent. higher. This percentage is considerably higher than Kraepelin's[6] findings of about 18 per cent. of unfruitful marriages in his Munich material, which is not much higher than the figure for the whole German population, and yet distinctly lower than Regis gives, who assumes that three-fourths of paretic marriages are childless.

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[3] Mattauschek and Pilcz: Ztschr. f. d. ges. Neurol. u. Psychiat., Orig., 1912, viii, 133; 1913, xv, 608.

[4] Fischer, O.: Ztschr. f. d. ges. Neurol. u. Psychiat., Orig., 1913, xvi, 120.

[5] Hannard and Gayet: Ann. Medico Psychol., 1911, xiii, 200, 403; xiv, 36.

[6] Kraepelin: Lehrbuch der Psychiatrie, Ed. 8, iii.

Even more interesting and startling is the matter of the living-born children. The average number of living-born children in this group is 1.4 to each family. If we consider only those families with living-born children, we find the average to be 2.24 children per family. In this group, however, are included 2 instances in which there is the unusually large number of 10 and 12 children, respectively. If we exclude these two abnormally large families we find that 75 families of male paretics have 98 living-born children and 9 families of female paretics have 3 living-born children. The average would then become 1.2 children per family, or where the father was paretic, 1.3 children per family, and where the mother was paretic only 0.3 children per family. Our number of paretic wives, we grant, is extremely small and not sufficient in itself to warrant drawing conclusions from it alone, but it is found quite generally that when the mother is the paretic the influence on the matter of sterility, number of abortions and small number of living-born children, together with their character, is more marked than where the father is paretic.

Further study of the histories of these 84 families with 101 living-born children shows that at the time the paretic patient entered the hospital, in this series averaging a period of 11.6 years after marriage, 20 children of this extremely small total of 101 died. Usually these deaths were in early infancy, as in the following instances, in which definite statements are noted: "1 immediately and 1 at the end of the first day," "1 at the end of the first week and the other of hydrocephalus at 5 months," "1 of spasms at 5 weeks," "1 of convulsions in early infancy." Subtracting these 20 children already dead from the total number, we find that in 84 families after a married life averaging 11.6 years, there were living only 81 children or less than one living child per family.

There is no statistical compilation of similar conditions in the general population which will allow satisfactory comparison of these figures. The nearest approach to this end is the tables of the United States Census in which we find that the average family in the State of Michigan in 1910 consisted of 4.3 individuals. With the two parents subtracted from this figure it leaves a total of 2.3 living children per family of the entire population. We do not know the average length of married life in these families entering into this general statistical compilation, but it would appear quite justifiable to assume that it at least equaled the period of 11.6 years found in our present series. Granting this assumption, we are able to conclude that the number of living children in the average family throughout the State of Michigan is 2.38 times as large as the average number of living children in the families of our series of paretic patients.

It would be desirable to know just when the original syphilitic infection occurred, the position that each pregnancy and miscarriage bore to that time and the relation which the three different types of marriages outlined above bore to this varying interval before marriage. All who try to obtain accurate histories from this type of patients know such information is very unsatisfactory at best, and inasmuch as we are not at this time going deeply into the matter of the character of the living offspring, we have purposely minimized its importance.

Our examinations of the serum of the children in these cases have not as yet been extensive enough to warrant drawing any conclusions. Plaut and Göring found among 100 children of their 54 cases a positive Wassermann reaction in 26 instances. They found in some families children showing a positive reaction where the mother's serum gave a negative reaction, and again, some children with positive and others in the same family with negative reactions. Similar observations can be found in Hauptmann's series and in our own cases. Although only 26 per cent. of Plaut's cases gave serologic evidences of syphilitic infection, 45 per cent. showed some defect in their physical conformation or signs of a psychopathic constitution, although as a rule they were intellectually well gifted. In many cases these defects are degenerative physical states no different from similar conditions found in children in whom other toxic agents, such as alcohol, have impaired the normal development of the germ plasm. The negative reaction in such cases, Hauptmann, drawing on bacteriologic distinctions, would explain as due to the condition being purely an intoxication, and assumes such children not to be infected with the treponeme. Such children do not show signs of definite specific disease. Theoretically they should not later develop juvenile paresis or even non-nervous specific disease. Whether they can later develop a primary sore is highly interesting. It is assumed that the Wassermann reaction and other of the four signs long precede the development of paresis. Since juvenile paresis and other evidences of lues hereditaria may not appear until the second and third or even fourth decade, it will require longer observation to prove whether this assumption holds true. Since this problem is very closely allied to the influence of constitutional syphilis on the descendants, we will leave it with the statement that competent observers have found about one-fourth of the living children of paretics to be actually infected with syphilis and approximately another fourth to show definite evidences of degenerative influences in their physical or mental constitution.

The number of cases in our series is admittedly small, but since they are taken as they came over a space of three years, and since they agree very closely with similar deductions made from larger numbers, one is justified in believing that they present a truthful picture.

With so much said, the next pertinent question is, What are you going to do about it? We have already commented on the pitifully small number of the infected mates of our paretics who had any knowledge of their disease. The same condition obtains, to be sure, in a large majority of all paretics. Treatment as ordinarily carried out with pills, even in those cases that are recognized, is the harmful factor. Some competent syphilologists have said that in those cases in which they have had control of the treatment of their syphilitics from the beginning, they have never seen tabes or paresis develop. Recent years have shown an unusually high percentage of early involvement of the central nervous system even in the secondary stages, particularly from the work of Ravaut and of Wile. Correct diagnosis of the syphilitic condition should be made and careful, persevering treatment given, with attention to the newer findings in the cerebrospinal fluid. If these pathologic changes do not permanently disappear under acceptable mercurial and salvarsan treatment, direct intraspinal introduction of salvarsanized serum in some form, with proper Wassermann control before permitting marriage and then similar careful observation, serum examinations and, if necessary, treatment in the case of the wives and children of all syphilitics, should theoretically offer some relief.

CONCLUSIONS

The large number of 38.18 per cent. of conjugal mates of paretic patients is shown to be infected with syphilis. In most of these mates the condition courses unrecognized as lues latens.

A pitifully small number of them ever receive treatment.

The proportion of these infected mates who later develop paresis appears to be higher than those who receive their infection from non-metasyphilitic sources.

The number of completely sterile marriages in syphilitic families in which one individual later develops paresis is abnormally high, constituting 32.5 per cent. This percentage is higher when it is the female mate that later becomes a paretic.

The number of marriages in which repeated pregnancies result only in abortions is likewise abnormally high, constituting in our series 12.7 per cent.

Of our series of eighty-six marriages 45.3 per cent. were absolutely childless.

Among 167 pregnancies there were forty-two abortions, miscarriages and stillbirths.

Among 123 living-born children twenty had already died before their eleventh year.

The number of living children per family is abnormally small.

A large number, in some investigations reaching as high as 25 per cent., of these children are actively syphilitic.

An equally large additional number show signs of degenerative physical conformation and psychopathic tendencies without a positive Wassermann reaction.

Much of all this is preventable.

State Psychopathic Hospital.

A REVIEW OF THE PRINCIPAL METHODS USED TO STANDARDIZE BACTERINS (BACTERIAL VACCINES)

WITH SPECIAL REFERENCE TO THE USE OF THE HEMOCYTOMETER *

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The use of bacterins in the treatment and prevention of disease has steadily increased since their introduction by Wright in 1902. "Vaccine therapy," so called, is now used by nearly every practitioner of human or veterinary medicine. Much more attention, however, has been paid to the extension of the application of this branch of medicine than to the study of its underlying principles and the perfection of its technic. One of the first requisites is an accurate and reliable method of estimating the number of dead bacteria inoculated. There are a few workers who will doubtless claim that it is quite immaterial whether a few million bacteria, more or less, are injected, and furthermore, that no method is absolutely accurate. These criticisms are not confirmed by careful scientific work. Those who are familiar with the use of bacterins know that often their injection is followed by unexpected results due to the toxicity of the bacterin, the idiosyncrasy of the patient or too large a dose, further, that while it is true that probably no method gives the exact number of bacteria, certain procedures lead to more accurate results than others.

During the last few years, I have prepared many bacterins for human and veterinary use. In their preparation the great inaccuracy of the methods of standardization has been thoroughly impressed on me. The more reliable methods were used and finally one was adopted, that is, the hemocytometer, which seemed to give by far the most reliable results. This method has been employed for the past three years.

On the publication of the article by Glynn, Powell, Rees, and Cox,[1] in which they give the results of very careful comparisons of the different methods, these results were compared with those obtained by me and found to agree in practically every instance. The technic which gave the most reliable results with them was the one used by me with several minor modifications. So far as known this method is not widely used in this country and it has been thought advisable to review the different methods of bacterin standardization with the relative advantages and disadvantages of each.

I. WRIGHT'S METHOD

Wright[2] first described his method in 1902. In its original and simplest form it consists in mixing measured and usually equal volumes of bacterial suspension and normal human blood with a small capillary pipet on a glass slide. From this mixture films are made on glass slides, stained, and a number of fields are examined microscopically. The number of bacteria and corpuscles are counted in each field and the ratio of the bacteria and red corpuscles found. The average number of red corpuscles is known to be 5,000,000 per cubic millimeter in a normal individual. Therefore, if there are two bacteria to each corpuscle in the different fields then the bacterial suspension is assumed to contain 10,000,000,000 per cubic centimeter. Allen[3] modified this method by using two or three volumes of a 2 per cent. sodium citrate solution as a further diluent for the bacterial suspension and blood. This was employed in order to prevent coagulation of the blood during the mixing process. He also used 5,500,000 as the average number of corpuscles per cubic millimeter. Nearly all of the stock bacterins now on the market are standardized by this latter modified method.

The criticisms of Wright's methods are many, among them we quote from Glynn, *et al.*:

> Wright's standard of comparison, namely, 5,000,000 red-blood corpuscles per cubic millimeter, is not altogether accurate; thus Cabot[4] states: "At the level of the sea and in adult life the normal number of red cells per cubic millimeter is about 5,000,000 for men and 4,500,000 for women. This is frequently exceeded in vigorous healthy persons; 6,000,000 is by no means rare among healthy young men, and higher figures are seen occasionally."

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[1] Glynn, E.; Powell, A. A.; Rees, and Cox, G. L.: Observations upon the Standardization of Bacterial Vaccines by the Wright, the Hemocytometer and the Plate Culture Methods, Jour. Path. and Bacteriol., 1913, xviii, 379.

[2] Wright, A. E.: On Some New Procedures for the Examination of the Blood and of Bacterial Cultures, Lancet, London, 1902, ii, 11.

[3] Allen: Vaccine Therapy and Opsonic Treatment, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1912.

[4] Cabot, R.: Clinical Examination of the Blood, Ed. 5, New York, William Wood & Co., 1904.

A practical illustration of this difficulty is afforded by the recommendation of Hewlett[5] to employ 5,000,000 as a standard, and Allen, 5,500,000—an increase of 10 per cent. Muir and Ritchie advise the observer to estimate "the red cells in his blood," which, of course, adds to the labor.

Wright's method is extremely ingenious and simple, and has been of great service to medicine by supplying a rough means of standardization. Many workers, however, have abandoned it as too inaccurate. According to Leishman, its chief defect is "the difficulty in securing a perfect film in which the ratio of germs to cells shall be constant throughout"; he also remarks, "Although at times we obtained results which were controlled by a living count, made by dilution and plating out on agar, we were unable to obtain consistently satisfactory results, and, in the case of broth vaccines, errors of from 50 to 100 per cent. in counts of the same film made by different observers were by no means uncommon."

Harrison states: "Unfortunately, in actual practice the process gives very variable results, and even in the hands of its author it gives figures with a variation of as much as 22 per cent. above and below the average of two counts."

Callison says: "As the technic is usually carried out, however, the result is little better than a good guess. The operator pricks his own finger, rarely going deep enough to allow the blood to flow freely, draws into a capillary pipet some of the blood and some of the bacterial emulsion, and then, by working rapidly, mixes the two as much as possible in order to make a smear before coagulation takes place. A little study of such a smear will demonstrate the inaccuracies that result from counting successive fields of red cells and bacteria. The distribution is freakish, and the thick and thin areas of the smear do not coincide. The worst feature of such a smear lies in the fact that in that part where the stroke begins there is a heavy deposit of bacteria, while in the last part it consists almost exclusively of red cells. No estimate of the concentration of a bacterial emulsion, based on a count of such a smear, can be accurate. Another objection to the method is that it does not seem wise to be constantly pricking the finger while working with bacterial cultures."

II. THE NEPHELOMETER METHOD

This was devised by McFarland[6] and is described by him as follows:

> It consists essentially of a series of standardizing tubes containing a suspension of fine precipitate approximating bacterial suspensions in opacity and a holder for making their comparison easy. The standard suspensions used are precipitates of barium sulphate made as follows: Two solutions, one a 1 per cent. solution of chemically pure sulphuric acid, the other a 1 per cent. solution of chemically pure barium chlorid, are prepared, then the one added to the other so that ten standards are prepared, containing 99 c.c. of the sulphuric acid and 1 c.c. of the barium chlorid; 98 c.c. of the sulphuric acid and 2 c.c. of the barium chlorid; 97 c.c. of the sulphuric acid and 3 c.c. of the barium chlorid, etc. According to the number of cubic centimeters of barium chlorid added, these are denominated 1, 2, 3, 4, etc. About 3 c.c. of each standard solution is sealed in a small test tube, care being taken to use tubes of uniform diameter and also to provide similar tubes for mixing the bacteria to be compared with the standard.
>
> The modus operandi of using the instrument is very simple. The standard tube appropriate to the experiment is selected, well shaken, stood in the left-hand pocket of the instrument and a tube containing sterile salt solution stood in the other. The surface growth of the bacterium to be suspended is taken up with a platinum loop and stirred in, rubbing the bacterial mass on the side of the tube just above the surface of the liquid and gradually adding the fluid to it by tilting the tube so as to avoid suspending masses of the culture. When the mixture appears homogenous a comparison is made by looking through the instrument against the sky. If the density be insufficient, more bacteria are added; if it be too dense, fluid can be added drop by drop from a medicine dropper or, what is better, the tube can be given a few turns in the centrifuge, by which the larger clumps of bacteria are thrown down and compared again. One should not be content with the comparison until the suspension be tried with others of the standard tubes than that which one intends to imitate. It is surprising at times to see how what is thought to be an exact equivalent will turn out to be 1 per cent. more or less dense.

This method was used by McI. Phillips[7] in standardizing the vaccines used to treat poll evil and fistulas in horses. It also was the first method used by me.

The errors in the use of this method are very large. The results obtained were compared with those obtained by the hemocytometer (to be described later) and were found to vary from 25 to 200 per cent. This great variation practically places it outside the limit of an accurate method. I agree with Callison,[8] who says concerning it: "It is only necessary to say that this method is *merely* a *guess*. The density of color in a given emulsion will be affected by many conditions aside from the bacterial content, and no two individuals will agree in their judgment as to the density of a color."

III. WEIGHT METHOD

This method was devised by Wilson and Dickson and is described as follows:

> The combined weight of a rectangular piece of thin platinum foil (1½ inches by 1 inch) and of a small dry test tube is estimated. The bacterial growth is carefully scraped off the surface of the medium and transferred to the platinum foil, which is then replaced in the weighing tube. The latter is now put in a desiccating chamber, which may conveniently be made out of a strong boiling tube, to the orifice of which a rubber cork pierced by two glass tubes is fitted. One of these tubes is attached to a Sprengel pump; the other has a well-fitting stopcock, and is connected with a bulb filled with cotton wool; by this air is gradually admitted when desiccation is completed. The desiccating tube and contents are then placed in a water-bath at 50 C., and the Sprengel pump set working.
>
> Desiccation is complete in less than fifteen minutes, when air is cautiously admitted by way of the stopcock, and the glass tube and foil allowed to cool within the desiccator. They are then weighed and the amount of bacterial growth estimated. The platinum foil is then spread out in a sterile dish, the pestle moistened with salt solution, and the dry growth carefully emulsified, salt solution being added drop by drop. In less than five minutes emulsification should be uniform and complete.
>
> They give the following values in round figures for the number of bacteria in 1 mg. of dried growth of the various bacteria:
>
> | | |
> |---|---|
> | Staphylococcus | 3,000,000,000 |
> | Streptococcus | 3,400,000,000 |
> | *Gonococcus* | 4,500,000,000 |
> | Meningococcus | 3,000,000,000 |
> | *B. coli* | 6,400,000,000 |
> | *B. typhosus* | 8,000,000,000 |
> | *B. pyocyaneus* | 3,400,000,000 |
> | Bacillus of Friedländer | 4,300,000,000 |
> | *M. melitensis* | 14,000,000,000 |

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[5] Hewlett: A Manual of Bacteriology, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1911.

[6] McFarland, Joseph: The Nephelometer, The Journal A. M. A., Oct. 5, 1907, p. 1176.

[7] Phillips, J. McI.: The Treatment of Suppurative Conditions in Animals by Bacterial Vaccines, Including a Preliminary Report of the Use of a Hyper-Immune Serum in Canine Distemper, Am. Vet. Rev., xxxvi, 1909-10, p. 656.

[8] Callison, J. G.: A Diluting Fluid for Standardization of Vaccines with the Hemocytometer, Jour. Med. Research, 1912-13, xxvii, 225.

They claim that the method is simple, rapid, gives uniform results, and is applicable to all bacteria which grow on solid media, whether they form uniform emulsions or not, and that the subsequent preparation of a uniform emulsion is much facilitated by the rapid desiccation.

This method has not been used by me, as considerable special apparatus is necessary for its application.

IV. PLATE-CULTURE METHOD

This method implies the standardization of bacterial suspensions by agar-plate cultures. The suspension is first filtered and centrifuged to do away with the clumps of bacteria. Dilutions usually 1:100, 1:1,000, 1:1,000,000 and 1:100,000,000 are prepared with sterile salt solution, and from these plates cultures are made. They are incubated at 37 C. (98.6 F.), for from forty-eight to seventy-two hours, and then the colonies are counted.

This method has many serious defects. 1. It is long, tedious and cumbersome, requiring from two to three days before the results can be known. 2. A colony may represent the growth of more than one bacterium, which often happens when the suspension is not perfectly homogenous or when diplococci are contained in it. 3. Some of the bacteria may not grow or may even be dead, so that the number of colonies does not represent the number of organisms contained in the suspension.

In comparing this method of estimating the number of bacteria with the actual counting by the hemocytometer it was found that the plate method underestimated. The variations were from 25 to 150 per cent. and always the plate method gave a less count than the hemocytometer.

These figures agree with those reported by Glynn, *et al.,* who state that the deficit obtained ranges from 50 to 200 per cent. This also agrees with the work of Breed[9] and Brew[10] on the comparison of the microscopic and plate method of counting bacteria in milk. They found that the plate method gave results that were from 5 to 44 times less than those obtained by the direct microscopic method.

From the preceding data it is readily seen that the plate method is not suitable for the standardization of bacterins.

V. GRAVIMETRIC METHOD

This method, as employed by Hopkins,[11] consists in the use of a special centrifuge tube, the end of which is drawn out into a small tip. This is graduated in hundredths of a cubic centimeter. The procedure is the following:

> The sterile cotton filter is moistened with salt solution and the funnel is placed in the mouth of the centrifuge tube. The bacterial growth is washed from the surface of an agar culture with salt solution and transferred with a pipet into the funnel. The filtration serves to remove any particles of agar or cotton that may be taken up and also the larger clumps of bacteria. The tube is then covered with a rubber cap, and, after another tube has been filled to the same point so as to balance, is centrifugalized for half an hour. The salt solution and bacteria above the 0.05 mark are then removed, and 5 c.c. of saline solution are measured into the tube. If the sediment does not reach the 0.05 mark, its volume is read on the scale and enough saline solution is introduced to make a 1 per cent. suspension. The sediment is then resuspended by forcing the salt solution into the tip with a capillary pipet and drawing the mixture in and out of the pipet repeatedly. The suspension is next transferred to a test tube to be killed in the usual manner. The tubes are washed, first in phenol (carbolic acid) and then in distilled water, the fluids being drawn into the tip with a pipet.
>
> It is customary to express the dosage of vaccines in terms of the number of organisms injected. Estimations made by centrifugalizing carefully counted suspensions give the following average values for a 1 per cent. suspension of the organisms commonly used when centrifugalized for one-half hour on a head 18 cm. in diameter, at 2,800 revolutions per minute. Similar values could readily be determined for centrifuges with lower speed:
>
> | | Per Cent. | Billion per c.c. |
> |---|---|---|
> | *Staphylococcus aureus and albus*.... | 1 | 10 |
> | *Streptococcus hemolyticus* .... | 1 | 8 |
> | *Gonococcus* .... | 1 | 8 |
> | *Pneumococcus* .... | 1 | 2.5 |
> | *Bacillus typhosus* .... | 1 | 8 |
> | *Bacillus coli* .... | 1 | 4 |
>
> The pneumocicci used were grown on moist serum agar and had well-developed capsules.
>
> With staphylococci the method gives very constant results as compared with a direct count, as the organisms are uniform in size and pack evenly. With colon bacilli and streptococci the count of a 1 per cent. suspension varies considerably, partly because of the great difference in the size of individual organisms of different strains and partly because of inequality in the packing of the sediment. The weight of the sediment dried to constant weight *in vacuo* gives the best index to the accuracy of the method. On a number of determinations the weight of 0.1 c.c. of staphylococci varied from 28.6 to 34.8 mg., with an average of 31.1 mg.; 0.1 c.c. of typhoid bacilli from 22.5 to 27.0 mg., with an average of 24.7 mg., and 0.1 c.c. of colon bacilli from 10.0 to 17.5 mg., with an average of 13.2 mg.

This method, as its author states, gives but approximate results and when they are compared with those obtained by the hemocytometer vary widely. No attempt has been made to tabulate the comparative results, as they differ between such wide limits.

VI. HEMOCYTOMETER METHOD

This method of standardization was first used by Mallory and Wright.[12] They describe their procedure as follows:

> The chamber used is manufactured by Zeiss for counting blood plates by the Helber method. It should be supplied with an especially thin cover glass (No. 146 Zeiss' Catalogue) to permit the use of the high-power dry objective, with which the counting is made. The chamber is ruled like the "Thoma-Zeiss blood-counting chamber," and the rulings have the same value except that the chamber is 0.02 mm. deep instead of 0.1 mm. For counting, the suspension of bacteria is diluted and mixed with distilled water 1:200 with the aid of the red-blood-corpuscle pipet of the "Thoma-Zeiss" apparatus. By a simple calculation it will be apparent that the product of the multiplication of the average number of bacteria per small square by 4,000 million will be the number of bacteria per cubic centimeter.

This method was used also by Murray who, however, employed a common Thoma-Zeiss hemocytometer with a well 0.1 mm. deep, an ordinary cover slip which is not optically plane, a $\frac{1}{12}$ oil-immersion lens and a staining solution of weak Giemsa's stain.

Mallory and Wright's technic was the first employed by me, using, however, a diluent which stained the bacteria, and an ordinary 0.1 mm. deep hemocytometer. An aqueous solution of methylene blue was first employed. This was not found satisfactory, as there was insufficient contrast between the fluid and the bacteria. Aqueous solutions of carbol fuchsin and carbol thionin were later employed. The latter was found to be the most satisfactory of any yet tried. No definite depth of stain was used, as it was found that certain organisms required more stain than others. Usually 3 per cent. saturated alcoholic solution of thionin was added to 2 per cent. phenol in sterile distilled water.

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[9] Breed, R. S.: The Determination of the Number of Bacteria in Milk by Direct Microscopical Examination, Centralbl. f. Bakteriol., xxx, Part II, Orig., p. 337.

[10] Brew: A Comparison of the Microscopical Method and the Plate Method of Counting Bacteria in Milk, Bull. 273, New York Agric. Exper. Sta.

[11] Hopkins, J. G.: A Method for Standardizing Bacterial Vaccines, The Journal A. M. A., May 24, 1913, p. 1615.

[12] Mallory and Wright: Pathological Technique, Ed. 4, Philadelphia, W. B. Saunders Company, 1910.

Glynn *et al.* recommend the following as a diluting fluid:

Stock Solution A.—Saturated thionin-blue (Grübler) in absolute alcohol.

Stock Solution B.—1 per cent. of pure phenol in clear tap water.

Take one part of Solution A to about 40 of Solution B, for most organisms, or 1 part of A to about 20 of B, for streptococci.

Callison uses a fluid prepared as follows:

Hydrochloric acid	2 c.c.
Mercuric chlorid 1 to 500	100 c.c.

Acid fuchsin, 1 per cent. aqueous solution, enough to color.

Add the fuchsin until the solution is a deep cherry red.

This diluent possesses certain advantages over the others: 1. The bacteria are well stained and there is sufficient contrast to make them easily visible.

2. The fluid is permanent and can be used for a long time. After frequent filterings more of the acid fuchsin should be added to keep the color constant.

3. The mercury in the fluid reacts with the protein of the bacteria, forming a mercurial albuminate. This causes a much more rapid sedimentation and very few of the organisms will be found to adhere to the cover slip.

The ordinary hemocytometer chamber used for blood examinations is 0.1 mm. deep. The optically plane cover slip is 0.4 mm. thick. The lens commonly used is a 4 mm. objective with a long focal distance. It is impossible to employ the oil-immersion 1/12 or even an ordinary ⅛ objective with this outfit, as the free working distance of the lens is not sufficient to permit the use of this thick cover glass. A thinner cover glass which is not optically plane is usually supplied with the Zeiss or Leitz hemocytometers. This can be used with the oil-immersion lens. However, serious defects are apparent. It is very difficult and sometimes impossible to obtain Newton's rings with this cover slip and also the objective often depresses it, lessening the depth of the cell. The action of the lens and oil often causes a disturbance of the bacteria which have settled to the bottom of the counting chamber (due to suction). These defects are elminated if another counting chamber is employed. The hemocytometer devised by Helber for estimating the number of blood platelets has a depth of 0.02 mm. If this chamber be used with an optically plane cover slip 0.18 mm. thick, an oil-immersion lens may be employed without the difficulties encountered with the chamber 0.1 mm. deep. It has been found, however, that the ordinary 3 mm. or ⅛ objective gives very good results when used with this chamber. The summarized advantages of the 0.02 mm. chamber are as follows:

1. This apparatus can be used with an oil-immersion lens or a ⅛ objective.

2. The cell being but 0.02 mm. in depth, the bacteria settle to the bottom more quickly than in the 0.1 mm. chamber.

3. The organisms can be seen much more distinctly because of the less depth of fluid.

The exact technic of standardization as now employed is the following:

The bacterial suspension is drawn up to the 0.5 mark in a Carl Zeiss' leukocyte pipet. Callison's diluting fluid is then drawn in to fill the pipet up to the 11 mark and the pipet is thoroughly shaken. This makes a dilution of 1:20. The bacteria are allowed to remain in the pipet for ten minutes in order to stain. After again thoroughly mixing, a small drop is placed on the center of the 0.02 mm. chamber (Helber) and the cover slip (optically plane 18 mm.) is placed in position. Care must be taken not to use too large a drop, as it will run over the safety trench and under the cover slip spoiling the preparation. When properly filled, place the counting chamber on the stage of the microscope, which has been *previously leveled.* Allow to remain quiet for fifteen minutes. The 1/12 oil immersion or ⅛ dry lens may be used to count the bacteria. The latter is preferred. The ocular employed magnifies ten times. A lower eye-piece, as one magnifying 6.4 or 5 times, may be used with the oil-immersion lens. Count 100 squares, usually twenty-five in each corner of the ruled area. To estimate the number of bacteria in 1 c.c. of the suspension, multiply the total number of bacteria counted in 100 squares by 4,000,000. Duplicate counts should always be made. The general formula for estimating the number of bacteria in 1 c.c. with this apparatus is the following:

$$\frac{\text{No. of bacteria counted} \times \text{dilution} \times 20{,}000}{\text{No. of squares counted}} \times 1{,}000 = \text{No. of bacteria in 1 c.c.}$$

A summary of the advantages and disadvantages of the different methods used follows:

1. Some method employing the hemocytometer offers the most accurate technic for standardizing vaccines.

2. Comparisons of different counts made of the same suspension by Wright's method showed an average variation of 15 per cent.

3. Comparisons of different counts made of the same suspension by the 0.02 mm. hemocytometer showed an average variation of 5 per cent.

4. Comparisons of counts of the same suspension made by Wright's method, Allen's modification, and the chamber method (0.02 mm.) showed that the former two gave a much less number of bacteria.

5. A less degree of uniformity of counts has been obtained with the 0.1 mm. chamber than with the 0.02 mm.

6. Callison's diluting fluid seems to be the best of any so far used.

7. The plate method of standardizing vaccines takes too long and is too cumbersome to be used in routine work. It also greatly underestimates the number of organisms in a suspension.

8. The nephelometer method possesses certain advantages, in that it is simple and quick, but it is not an accurate method, as it is impossible to judge the concentrations correctly.

Morbidity Reports and Non-Communicable Diseases.—In diseases that are not communicable, such as those due to occupation or environment, reported cases show the location of conditions which are causing illness or injury. This makes it possible to remedy the faulty conditions, so that others may not be similarly injured.—John W. Trask, Supplement No. 12, Public Health Reports, April 3, 1914.

REPORT OF THIRTY-FOUR CASES OF ARTIFICIAL PNEUMOTHORAX

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The thirty-four cases of pulmonary tuberculosis to be described have been treated during the past two years by the induction of artificial pneumothorax.

The operation has been done in this series for several indications, and I have arranged these cases as shown in the accompanying table in order to study the indications and to draw conclusions from the results so far as one can, considering the number of cases and the time they have been under observation.

RESULTS OF TREATMENT BY PNEUMOTHORAX IN THIRTY-FOUR CASES OF LUNG DISEASE

Number	Stage of Disease	Indications	Date First Operation	Result	Remarks
1	1, 2	Progressive	2/13/13	Discharged improved, 10/13/13	Apparently cured, 1/15
2	2, 1	Progressive	2/15/13	No compression on account of pleural adhesions	
3	3, 2	Progressive	3/18/13	Discharged much improved, 5/31/14	Condition satisfactory, 1/15
4	2, 3	Progressive	5/16/13	Discharged, 5/31/14	Condition satisfactory, 1/15
5	3, 2	Progressive	4/12/13	No improvement	Died, 7/13
6	3, 2	Progressive	6/ /13	Temporarily improved	Died of Bright's disease, 10/23/13
7	2, 2	Progressive	8/10/13	Discharged, 1/14/14, much improved	Condition satisfactory, 1/15
8	2, 2	Progressive	8/31/13	Discharged, much improved, 4/20/14	Condition satisfactory, 1/15
9	3, 2	Progressive	9/ 9/13	Improvement	Continued improvement, 1/15
10	3, 2	Progressive	8/31/13	No compression on account of pleural adhesions	....
11	3, 3	Relief	9/17/13	Temporary relief	Died, 12/19/13
12	2, 3	Hemorrhage	9/22/13	No recurrence of hemorrhage	Died, 11/14
13	3, 3	Relief	9/27/13	No relief	Died, 4/15/14
14	2, 2	Progressive	10/12/13	Discharged, apparently cured, 4/30/14	Condition satisfactory, 1/15
15	3, 3	Relief	11/18/13	Temporary relief	Died, 2/14
16	1, 3	Progressive	12/14/13	Discharged; improved, 2/14/14	Condition satisfactory, 1/15
17	3, 2	Pleural effusion	1/ 6/14	No recurrence of effusion	Progressive disease complicated by nephritis, 1/15
18	2, 1	Pleural effusion	1/ 6/14	No recurrence of effusion	Returned to Germany, 5/14, much improved
19	1, 2	Progressive	2/ 3/14	No improvement	Left observation, 4/14, not improved
20	1, 2	Pleural effusion	4/22/14	No recurrence of effusion	Apparently cured, 1/15
21	3, 1	Hemorrhage	5/ 6/14	No recurrence of hemorrhages	Continued improvement, 1/15
22	2, 1	Progressive	6/21/14	Improvement	Continued improvement, 1/15
23	3, 3	Relief	6/12/14	Temporary relief	Died, 11/14
24	3, 2	Relief	6/12/14	Temporary relief	Died, 8/14
25	3, 2	Progressive	6/28/14	Improvement	Continued improvement, 1/15
26	2, 2	Progressive	7/ 1/14	Improvement	Continued improvement, 1/15
27	3, 2	Relief	8/ 6/14	Temporary relief	Continued relief, 1/15
28	3, 2	Relief	9/ 6/14	Temporary relief	Continued relief, 1/15
29	3, 3	Relief	10/10/14	No relief	Died, 11/14
30	1, 3	Hemorrhage	10/20/14	No recurrence of hemorrhage	Continued activity, 1/15
31	3, 1	Progressive	11/14/14	No compression on account of pleural adhesions	....
32	1, 3	Progressive	11/14/14	Improvement	Continued improvement, 1/15
33	2, 3	Progressive	11/14/14	No compression on account of pleural adhesions	....
34	1, 3	Hemorrhage	12/15/14	Two subsequent small hemorrhages with activity in opposite lung	....

In the column next to the case number, I have placed figures indicating the stage of the disease in each lung. Any method of indicating the stage of tuberculosis by figures is unsatisfactory, but I have hoped, by using them in a broad sense, to present a better picture of the general condition in each case than could otherwise be done without complete transcripts of physical examination and Roentgen-ray findings. In this diagram, 1 represents peribronchial infiltration with scattered tubercles; 2 stands for conglomeration of tubercles or consolidation; and 3 indicates that a cavity or cavities are present.

The date of the first operation only is given. The subsequent fillings have been done in each case as often as circumstances warranted, and I do not think that time need be taken here to record the number of fillings or amounts of gas used.

Nineteen of these patients were operated on on account of progressive disease. Of this number, 15 were patients in Arequipa Sanatorium which admits only early cases or cases in which the prognosis is good. They form, therefore, an unusually good series from which to judge of the effect of artificial pneumothorax in patients best adapted to its applications. These patients, originally chosen on account of the favorable nature of their process, had been under careful observation for some time and had had the benefit of the best sanatorium treatment. They represent the percentage of early sanatorium cases that do not recover under the most favorable surroundings.

In analyzing these nineteen cases from the point of view of results, we see that four attempts to compress the lung were not successful owing to pleuritic adhesions; two showed no improvement; two temporary improvement only, followed by progressive disease; ten were discharged as arrested cases, or much improved, and remain in satisfactory condition at the present time. One patient, although doing well and likely to recover, is not included in either classification as he has been under observation less than four months.

Of the ten patients who recovered, four had cavities on one side and six were in the second stage only. Of the four who were unimproved or temporarily improved, only three had cavities on one side.

We occasionally hear unilateral disease mentioned in connection with indications for artificial pneumothorax but in none of this most favorable series could I grade the least advanced lung as better than a first-stage condition.

With these figures before us, it is clear that, although we may expect a recovery in over 50 per cent. of the selected cases, this recovery rate diminishes as the areas of softening increase and cavity formation is found. Hence, advanced cases with cavities and softening on both sides, if operated on at all, would only be given this form of treatment in the hope of relieving distressing symptoms. That this can be done in a large number of advanced cases, I am convinced. When large cavities exist, so situated that the pus drains into a bronchus, an almost constant and distressing cough is the result. Often, in such cases, a compression of the lung will relieve this symptom when drugs and rest are unsuccessful. Eight such cases are included in this series, and five were much relieved. In three I could see no change for the better although there was certainly no change for the worse due to the operation.

Tuberculous pleural effusion is often a serious complication in lung tuberculosis, as the fluid tends to return after removal, keeping up the temperature and favoring development of the lung condition.

In removing fluid and testing the intrapleural pressure with a manometer, one is struck by the high negative pressure which results. By replacing the fluid with nitrogen or air, the pressure is maintained equal and the lung has time to adjust itself to the new conditions before the gas is absorbed. The three cases of pleural effusion treated in this way showed no recurrence of the fluid.

Hemorrhage is one of the most important indications for the operation of artificial pneumothorax. When the bleeding point is properly located and compression is not prevented by adhesions, hemorrhage is promptly relieved by lung compression even in cases that have resisted all other possible modes of treatment. In only one case have I seen a temporary recurrence of bleeding, and in that instance I believe both sides contributed to the hemorrhage.

In nearly all cases treated by artificial pneumothorax the immediate results are good. The fever is lowered, cough diminished, and night sweats disappear. One is tempted to become overenthusiastic and to employ this method as a routine measure; but this is illogical and the results will only tend to bring the operation into disfavor. Many conditions met in pulmonary tuberculosis are best treated by this procedure, and in the cases in which the induction of artificial pneumothorax is the operation of choice, we may expect recovery in over 50 per cent. When this method of treatment is used, it should be used for one of the definite indications or not at all. When this is done it will be found that the induction of artificial pneumothorax is a tremendously important addition to our means of treating lung tuberculosis.

CONCLUSIONS

The most favorable cases for lung compression are those in which cavity formation has not occurred but which, under usual methods of treatment, are progressing toward softening.

In some advanced cases with large cavities, much relief of distressing symptoms may be obtained by compressing the more advanced lung.

Removal of fluid with temporary compression by nitrogen gas or air is the most rapid and effective method of treating large pleuritic effusions.

Hemorrhage is usually promptly and permanently relieved by artificial pneumothorax.

Compression of one lung does not induce increased activity of the disease on the opposite side.

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THE REFLEX EFFECTS OF ALCOHOL ON THE CIRCULATION *

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Like all other irritant drugs, alcohol has a local and a systemic action, that is, an effect at the point of application before absorption and a general effect after it has been taken up into the blood. Whether or not alcohol stimulates the circulation after it has been absorbed is still the subject of controversy. Many clinicians regard alcohol as one of the best circulatory stimulants at their disposal, while not a few practitioners and the large majority of laboratory workers refuse to ascribe to alcohol any direct stimulating action on the circulation, and believe that when it acts at all it acts as a depressant. But little attention has been given to the other phase of the question: the reflex effect of alcohol on the circulation.

When moderately strong alcohol is taken into the mouth or swallowed it produces considerable local irritation. It is generally admitted that any peripheral irritation,[1] especially irritation of the gastric mucous membrane, produces a reflex rise in blood pressure and an acceleration of the heart.

It seemed possible that in this reflex stimulation might be found the explanation of the divergent effects reported by the clinician on the one hand and by the laboratory worker on the other. In animal experimentation it is customary to inject the alcohol directly into a vein. To prevent a reflex effect on the circulation from irritation of the vessel or adjoining tissues, the alcohol is usually well diluted. But the physician in prescribing alcohol usually gives whisky or brandy by mouth. It is rarely diluted with more than two or three times its volume of water: the patient receives a distinctly irritating drug which may be capable of initiating a reflex. Further support to the hypothesis that the stimulating action of alcohol on the circulation is a reflex one seems to be found in Cabot's[2] papers. He administered whisky or alcohol, well diluted and hence not irritating, to a number of patients, and concluded that "neither the maximum nor the minimum blood pressure showed any variations that could reasonably be referred to the action of the alcohol. So far as could be determined . . . the action of alcohol upon the circulation was nil." It therefore seemed worth while to determine whether or not alcohol produces such a reflex stimulation of the circulation when administered in irritating concentrations, and whether such stimulation will justify the use of alcohol as a circulatory stimulant.

Since the present investigation is concerned solely with the reflex effects of alcohol, only the literature which deals with the action of concentrated solutions need be considered. And since not infrequently toxic doses were employed, attention will be limited to those circulatory changes which occurred shortly after administration.

ANIMAL EXPERIMENTS: I. HISTORICAL

Zimmerburg[3] carefully excluded all outside factors which might influence blood pressure or heart rate.

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* From the Department of Pharmacology, Columbia University, College of Physicians and Surgeons, and the Medical Service of the Roosevelt Hospital.

[1] Dixon: Manual of Pharmacology, Ed. 3, London, 1912.

[2] Cabot: Med. News, 1903, lxxxiii, 145; Boston Med. and Surg. Jour., 1903, cxlix, 93.

[3] Zimmerburg: Untersuchungen über den Einfluss des Alkohols auf die Tätigkeit des Herzens, Dissert., Dorpat, 1869.

He concluded from his experiments on dogs and cats that the administration of strong alcohol by stomach tube did not produce a reflex rise in blood pressure or an acceleration of the heart.

Dogiel[4] and Ronci and Salvioli[5] found that when concentrated alcohol was administered to dogs by stomach tube, a rise in blood pressure occurred. As Abel[6] has pointed out, this effect was due not to the alcohol but to the movements of the animal.

Gutnikow[7] reported that strong alcohol produced a well-marked but transitory rise in blood pressure. A similar increase in pressure and comparable changes in the gastric mucosa followed the injection of 10 per cent. silver nitrate into the stomach. He concluded that the rise in both instances was reflex and was the result of irritation of the gastric mucous membrane.

Rosenfeld[8] concluded that alcohol did not raise the blood pressure either reflexly or after its absorption.

According to Dixon,[9] concentrated solutions of alcohol introduced into the stomach increased blood pressure and accelerated the pulse. These effects were partly reflex, partly central, in origin, for even dilute alcohol produced an immediate heightening of the blood pressure.

Brooks[10] administered the alcohol by gastric fistula to unanesthetized dogs. He could determine no evidence of reflex effect on blood pressure or heart rate. When the alcohol was poured directly into the mouth, there occurred a sharp rise in blood pressure, the heart rate remaining constant or becoming slower. This effect lasted from five to ten minutes, and then the pressure returned gradually to the original level.

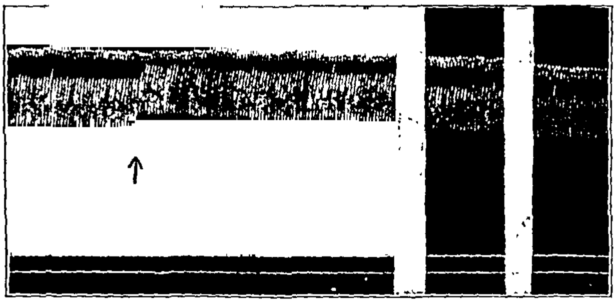

Fig. 1.—Decerebrate cat. Upper tracing, blood pressure. Lower tracing, respiration. Upstroke = inspiration. At the arrow, 2 c.c. per kilogram of 50 per cent. alcohol were injected into the stomach. Six minutes elapsed between Segments 1 and 2, and five minutes between 2 and 3.

II. EXPERIMENTAL

In the course of a study of the action of alcohol on respiration, the effect of alcohol on blood pressure was regularly recorded. The animals used in the experiments were cats. To insure intimate contact betwen the alcohol and the gastric mucosa, the animals were not fed on the day of the experiment. The cats were etherized and decerebrated. Blood pressure was taken from the carotid, and the alcohol was administered by means of a stomach tube which was tied into the esophagus. Respiration was recorded by the Cushny plethysmograph.[11] In the twenty experiments performed, alcohol in concentrations of 10, 25, 50 and 95 per cent. was administered. The doses varied from 0.5 c.c. to 5 c.c. per kilogram.

In no instance was there any marked change in heart rate or blood pressure within half an hour of the administration of the alcohol. A typical tracing is shown in Figure 1. The upper curve is the blood pressure; the second curve represents the respiration, the upstroke occurring during inspiration. At the point indicated by the arrow, 2 c.c. per kilogram of 50 per cent. alcohol were injected into the stomach. There was no marked change in the blood pressure during the first fifteen minutes; then a very slight fall occurred. Neither the rate nor the depth of breathing was markedly changed. The tracing moved upward as a whole because the volume of the animal within the plethysmograph was increased by the volume of alcohol injected. At necropsy an hour later, the gastric contents consisted of a little clear fluid which smelled strongly of alcohol. The mucous membrane was pale and tough and did not show any signs of active hyperemia.

The introduction of small quantitites of water at room temperature did not influence the blood pressure curve, nor did the introduction of an emulsion of oil of peppermint in water.

CLINICAL OBSERVATIONS

The reports dealing with the clinical use of alcohol are numerous, and show the same disparity that has been found in the literature of the animal experiments. Many of the observers neglected to exclude rigidly outside disturbing factors, so that it is impossible to ascertain whether the changes in the circulation were due to the alcohol or to some extraneous cause. For this reason the reports of Lichtenfels and Fröhlich,[12] Marvaud,[13] Parkes,[14] and von Jaksch[15] are discredited.

Other investigators experimented on themselves —a method of investigation which is subject to serious error. Thus Weisenfeldt[16] found that in one of his experiments, 75 c.c. of sherry raised his blood pressure from 140 to 190 mm. Hg. His conclusions are not justified because of the large variations in his normal pressure, and because he used a von Basch sphygmomanometer. Bachem[17] found that small amounts of alcohol, in the form of wine or diluted sprits, raised his blood pressure. The effect reached its maximum in half an hour, and had wholly disappeared thirty minutes later. The effect varied directly with the concentration of the alcohol employed. Because he failed to obtain a reflex stimulation of the circulation when he drank mustard water, he argued that the rise in pressure after alcohol was not of reflex origin but was due to an improved action of the heart. There was no uniformity in the effect on the heart rate, and there was no relation between the pulse rate and the blood pressure.

Kochmann[18] obtained results almost identical with those of Bachem, but ascribed the change to a redistribution of the blood and an indirect stimulation of the heart.

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[4] Dogiel: Arch. f. d. ges. Physiol., 1879, xix, 340.

[5] Ronci and Salvioli: Studio critico-sperimentale intorno ad alcune particolarita dell' azione fisiologica dell' alcool, Modena, 1875.

[6] Abel: Physiological Aspects of the Liquor Problem, New York, 1903, ii, 1-167.

[7] Gutnikow: Ztschr. klin. Med., 1892, xxi, 153.

[8] Rosenfeld: Der Einfluss des Alcohols auf den Organismus, Wiesbaden, 1901.

[9] Dixon: Jour. Physiol., 1906-1907, xxxv, 346.

[10] Brooks, Clyde: The Action of Alcohol on the Normal Intact Unanesthetized Animal, The Journal A. M. A., Jan. 30, 1910, p. 372.

[11] Cushny and Lieb: Jour. Pharmacol. and Exper. Therap., 1915, vi.

[12] Lichtenfels and Fröhlich: Denkschr. d. kaiserl. Akad. Wien. (Math.-Naturw. K.), 1852, iii, Part 2, 133.

[13] Marvaud: L'alcool, son action physiologique, Paris, 1872.

[14] Parkes: Proc. Roy. Soc. London, 1873-1874, xxii, 172.

[15] Von Jaksch: Der Weingeist als Heilmittel, 1888, p. 23, Congress, Wiesbaden.

[16] Weisenfeldt: Arch. f. d. ges. Physiol., 1898, lxxi, 60.

[17] Bachem: Arch. f. d. ges. Physiol., 1906, cxiv, 508.

[18] Kochmann: Arch. Internat. Pharm. Therap., 1905, xv, 443.

Cook and Briggs[19] concluded from very careful study that any rise in blood pressure observed after alcohol was solely reflex in origin.

Dixon[9] reported that concentrated alcohol quickened the heart; dilute alcohol had no such effect. If the concentrated alcohol was retained in the mouth for a few seconds only and then spatt out, the effect quickly passed off, but if it was taken into the stomach the acceleration was prolonged for half an hour or more. A similar but less efficient stimulation occurred after swallowing other substances, such as mustard, essential oils, etc.

According to Bouvier,[20] Zimmerburg,[3] Martin and Stevens,[21] Wendelstadt,[22] Jaquet and von der Mühll,[23] and John,[24] alcohol produced no significant change in blood pressure or heart rate unless large doses were employed. Then alcohol acted as a circulatory depressant.

TECHNIC

The observations were made in the medical wards of the Roosevelt Hospital. The patient who was the subject of the investigation was either placed in a quiet room off the ward or was surrounded by screens so that outside disturbances were reduced as much as possible. He was made comfortable and was usually almost flat in bed. The method of procedure was outlined to him in order that the mental factor might be minimized. For the determination of the blood pressure an aneroid sphygmomanometer and the Janeway leather cuff, 13.5 cm. in width, were used. The aneroid was frequently tested with a standard mercury manometer, and any necessary corrections were made. The blood pressure was taken by the Korotkoff[25] method, a Bowles stethoscope being applied over the brachial artery about 1 cm. below the lower end of the cuff. Systolic blood pressure was read off at the moment when the first sounds were heard as the pressure within the apparatus was falling. The beginning of the fourth phase (that is, the sudden dulling of the sounds) was regarded as coincident with diastolic pressure. To eliminate changes in rate accompanying respiration, the radial pulse was counted for a full minute with a stop-watch. Respiration was also counted in the same way to check the pulse. Blood pressure, pulse and respiration were taken every five minutes until a constant had been obtained. The alcohol was then given and the readings again taken at the same intervals for about an hour. In all experiments the alcohol was administered in the form of whisky. The doses employed were usually small, either 5 or 10 c.c., though the effect of larger doses was also noted. The smaller doses were selected in order to prevent the possibility of enough alcohol accumulating in the blood to exert a direct action on the central nervous system and on the circulatory organs. Since it was desired to produce a reflex effect, the whisky was generally administered undiluted. In some cases, whisky diluted with one, two, three, or four volumes of water was employed.

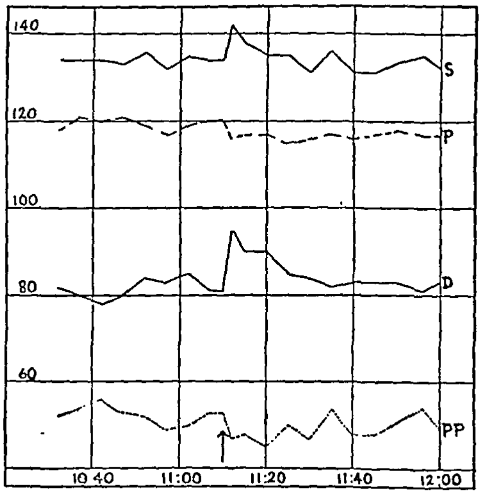

Fig. 2.—Patient S. S., August 28. At the point indicated, 5 c.c. of undiluted whisky were administered. In this and the following figures *S* = systolic blood pressure, *P* = pulse rate, *D* = diastolic pressure, *PP* = pulse pressure. Time is written along the abscissa. Heart rate per minute and blood pressure in mm. Hg are written on the ordinate.

Needless to say, none but those not averse to the use of alcohol were requested to lend themselves to the investigation.

In all, forty-three observations were made on twenty-one different patients. Among the diseases for which these patients were being, or had been, treated were typhoid, pneumonia, acute articular rheumatism, malaria, chronic nephritis, cirrhosis of the liver, arteriosclerosis, myocarditis, chronic endocarditis, malignant endocarditis, exophthalmic goiter, hysteric paraplegia, sarcoma of the femur, and diabetes.

EXPERIMENTAL

Hermann,[26] and Mayer and Pribram[27] reported that the introduction of water into the stomach caused a reflex increase in blood pressure and pulse-rate. Five experiments were therefore made in order to determine whether or not the swallowing of a non-irritating fluid had any effect on the circulation.

The patients were given cold water in doses varying between 5 and 20 c.c. In no instance was there an appreciable change in heart rate, systolic, diastolic, or pulse pressures.

The effect of 5 c.c. of undiluted whisky was studied on fourteen patients. Six of these experiments were negative, that is, there was no marked change in systolic, diastolic or pulse pressures, or in heart rate. Two of these patients suffered from circulatory disease and one from diabetes; two were active typhoids. The sixth subject was a nervous Hebrew suffering from sarcoma of the femur. On physical examination his superficial and deep reflexes were hyperactive; it was, therefore, surprising that so irritating a drug as whisky failed to influence his circulation.

Eight cases showed a small but demonstrable rise in blood pressure. This group included convalescent typhoid, nephritis, exophthalmic goiter, malaria and hysteric hemiplegia.

Figure 2 illustrates the effect of 5 c.c. of whisky on the patient suffering from exophthalmic goiter. It will be noted that the stimulation is exceedingly transient and lasts less than twenty minutes; that the maximal rise in systolic pressure occurs almost at once, that the diastolic pressure is raised more than the systolic, so that the pulse pressure is decreased. The pulse rate remains practically unchanged. It should be pointed out that this case represents the most marked effect which followed the administration of 5 c.c. of whisky.

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[19] Cook and Briggs: Johns Hopkins Hosp. Rep., 1903, xi, 451.

[20] Bouvier: Arch. f. d. ges. Physiol., 1869, ii, 370.

[21] Martin and Stevens: Studies from Biol. Lab., Johns Hopkins, 1887, ii, 213.

[22] Wendelstadt: Arch. f. d. ges. Physiol., 1899, lxxvi, 223.

[23] Jaquet and von der Mühll: Cor.-Bl. f. schweiz. Aerzte, 1891, xxi, 457.

[24] John: Ztschr. f. exper. Path. u Therap., 1908, 1909, v, 579.

[25] Korotkoff: Cited by Hirschfelder, Diseases of the Heart and Aorta, J. B. Lippincott Company, Philadelphia, 1910.

[26] Hermann: Cited by Abel, Physiological Aspects of the Liquor Problem, ii, 72.

[27] Mayer and Pribram: Sitzungsb. d. kais. Akad. Wissen. (Math.-Naturw. Cl.), 1872, lxvi, 102.

The reaction of the active typhoid cases to these doses of concentrated alcohol was, on the whole, disappointing.

TABLE 1.—FIRST OBSERVATION ON G., AUGUST 20

Time	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Heart Rate	Notes
2:33	119	68	51	80	
2:38	118	66	52	77	
2:43	115	65	50	78	
2:48	118				
2:49	116	68	48	77	
2:53	118	69	49	79	
2:55	...	..	..	..	Whisky, 5 c.c., undiluted
2:56	130	75	55	80	
3:00	127	76	51	76	
3:05	121	74	47	81	
3:10	119	75	44	81	
3.15	118	72	46	83	
3:20	115	68	47	83	
3:25	117	66	51	79	

Table 1 is a record of the first observation which was made on one of these typhoids during his convalescence from the primary attack. Five c.c. of undiluted whisky caused an increase in the systolic and diastolic pressures with a decrease in pulse pressure. The heart rate was slightly increased. That is, there was a small but distinct stimulation of the circulation.

TABLE 2.—SECOND OBSERVATION ON G., AUGUST 25

Time	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Heart Rate	Notes
10:48	111	62	49	75	Patient apathetic
10:53	112	64	48	73	
10:58	111	66	45	73	
11:03	110	65	45	73	
11:08	110	67	43	72	
11:13	113	65	48	71	
11:18	112	64	48	68	
11:23	111	66	45	67	
11:28	111	67	44	68	
11:30	111	65	46		
11:33	...	..	..	..	Whisky, 5 c.c., undiluted
11:34	114	72	42	81	
11:38	112	72	40	77	
11:43	106	73	33		
11:45	109	72	37	74	
11:48	114	67	47	78	
11:50	111				
11:54	108	66	42	80	
11:58	114	66	48	79	
12:03	111	..	..	77	
12:06	112				
12:08	116	68	48	74	
12:13	114	65	49	76	
12:18	114	..	..	76	
12:22	112				
12:24	111	64	47	75	Restless
12:28	114	68	46	76	
12:33	113	68	45	77	
12:38	111	66	45	77	

The day after this observation was made, the patient had a recrudescence, and on the fourth day of his secondary illness another determination was undertaken (Table 2). At this time the patient was apathetic, looked exceedingly ill, and had a high temperature. Five cubic centimeters of whisky now produced no change in systolic blood pressure but raised the diastolic. As a result, the pulse pressure was increased.

In the first experiment there was a small but distinct stimulation. The condition of the patient, however, was such that he required no circulatory stimulation. The second observation was made at a time when circulatory stimulation was called for, yet alcohol did not produce any improvement; in fact, it actually decreased the efficiency of the circulation. Indeed, it would seem from this and other experiments that in the presence of severe toxemia, alcohol loses its power to raise blood pressure reflexly.

The effect of 10 c.c. of undiluted whisky was more pronounced than that following the ingestion of half this amount. While it is true that in a few cases the changes induced were comparatively slight, the effect was nevertheless more constant than in the series just described. Thus, some signs of reflex stimulation were present in all the patients studied. As with the smaller doses, so with the larger, the response of the typhoids was less than that of any of the other patients, and the most marked stimulation occurred in the patients showing exaggerated reflexes. Figure 3 represents the response of the patient S. S., whose reaction to 5 c.c. of whisky is illustrated in Figure 2. The records were taken September 1 and August 28, respectively. During the interval, the condition of the patient had not improved. A glance at the charts shows that the effects are similar in kind and differ only in degree.

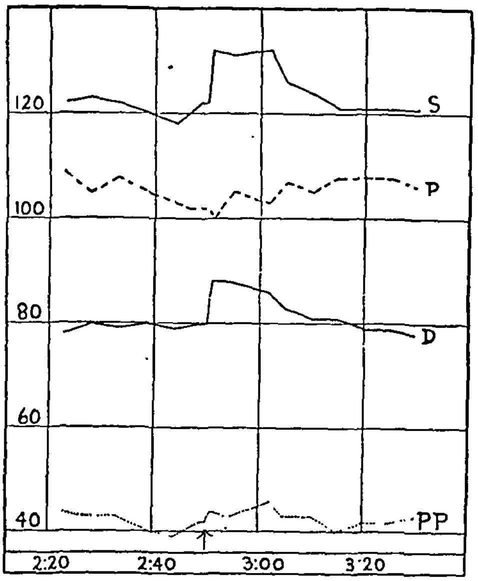

Fig. 3.—Patient S. S., September 1. At the point indicated, 10 c.c. of undiluted whisky were administered.

Figure 4 shows the effect of 10 c.c. of whisky administered to the same subject September 26, at which time the patient was much less nervous, had gained in weight, and was very much better in every way. The increase in pulse rate may be accounted for by the excitement incidental to her discharge from the hospital later in the day. With the increase in the stability of the central nervous system and the absence of hyperactive reflexes, the effect of the alcohol is so slight that for all practical purposes it may be disregarded.

In chronic alcoholics the response to strong solutions of alcohol is distinctly less than in those who use the drug in moderation. Thus, in the experiment recorded in Table 3, 20 c.c. of undiluted whisky produced only a very slight change in the circulation. The patient ordinarily drank from ten to fifteen whiskies a day, and presented a typical picture of chronic alcohol poisoning.

A number of patients objected to the straight whisky because of the excessive irritation of the mouth and throat which it produced. The drug was therefore diluted with one, two, three, or four volumes of water. The effects following the ingestion of 5, 10, 20 or 30 c.c. of whisky so diluted were very much less marked than when the same quantity of straight whisky was taken. In fact, one part of whisky to four of water, making about 12 per cent. solution, is apparently non-irritating and caused no change in pulse rate or blood pressure.

TABLE 3.—OBSERVATION OF R., AUGUST 8

Time	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Heart Rate	Notes
2:06	222	128	94	88.5	
2:08	220	128	92		
2:13	222	128	94	89	
2:16	222	129	93		
2:21	221	126	95	86	
2:24	220	128	92	86	
2:29	222	127	95	86.5	
2:31	221	128	93		
2:37	223	127	96	89	
2:39	222	129	93	88.5	
2:52	221	128	93	87	
2:55	221	128	93		
3:02	223	129	94	87.5	
3:04	223	129	94		
3:08	...	...	..	....	Whisky, 20 c.c.
3:09	228	135	93	85.5	
3:11	230	135	95	85	
3:16	225	133	92	87	
3:18	223	133	90	87	
3:23	228	133	95	88	
3:27	229	133	96	86.5	
3:32	226	131	95	85	
3:34	228	132	96	86.5	
3:40	228	132	96	88	
3:42	226	132	94		
4:06	224	126	98	88.5	
4:08	222	127	95		
4:13	223	126	97	89	
4:16	221	128	93		
4:20	221	129	92	90	
4:23	221	128	93	89	

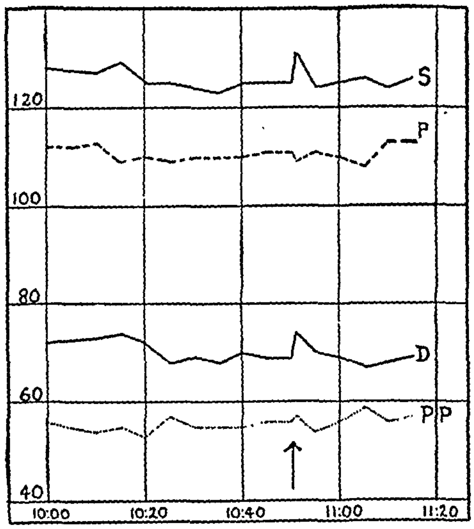

Fig. 4.—Patient S. S., September 26. At the point indicated, 10 c.c. of undiluted whisky were administered.

SUMMARY

From these experiments it is evident that small doses of undiluted whisky cause a reflex effect on the circulation in a certain percentage of the patients. It seems probable that this reflex action will explain the so-called stimulation which has been reported to follow alcohol, but which has been ascribed to a direct action of this drug on the circulation.

The reflex is most evident in those cases with hyperactive superficial and deep reflexes, least evident in those who are apathetic as a result of bacterial toxemia. It is more marked in moderate users of alcohol than in those who use alcohol to excess. This is probably due to the protective secretion of mucus which is present in alcoholic gastritis. The reflex is elicited *only* by *irritating concentrations* of whisky. Well-diluted whisky causes practically no changes in the circulation before absorption. The degree of response varies more or less directly with the degree of irritation induced; that is, with the dose and the concentration.

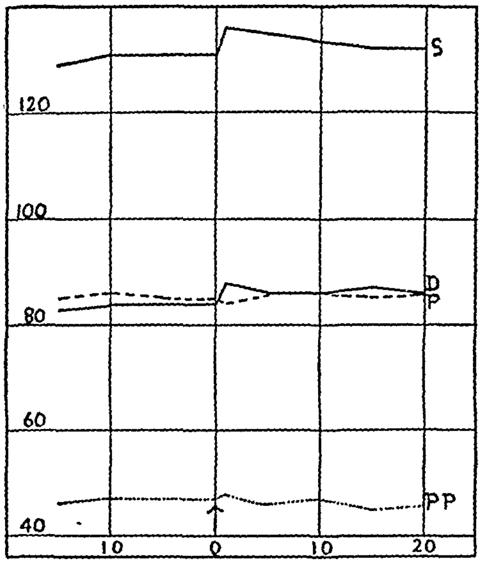

Fig. 5.—Composite of all the observations made.

Figure 5 is a composite of all the observations that were made, and serves to illustrate the reflex effect on the circulation of the various doses of whisky in the several concentrations. The changes produced in the heart rate are so small that they are well within the normal fluctuations. The systolic blood pressure is raised only 5 mm. The maximum is reached within the first minute, and then the pressure declines so that it reaches normal in less than half an hour. The diastolic pressure is also raised, proportionately less than the systolic, but the return to the original level is very much slower. As a result, the pulse pressure, which was temporarily increased immediately after the whisky was swallowed, is permanently decreased. That is, the pulse after a fleeting increase in size becomes smaller.

In some individual cases the decrease in pulse pressure is brought about by a disproportionate rise in the diastolic pressure as well as by its comparatively slower decline.

From these investigations it is apparent that alcohol does not stimulate the circulation either by increasing the heart rate or by raising the blood pressures. The advocates of the use of alcohol, while admitting the truth of the foregoing, may claim that whisky improves the circulation in some other fashion. Thus, this drug may increase the work done by the heart or it may increase the velocity of the blood flow or it may improve the efficiency of the heart as a pump.

An approximate idea of the effect of whisky on these factors may be obtained by Tigerstedt's[28] formula:

P. P. × P. R. = Velocity
Systolic P. × P. R. = Work

Table 4 shows that the changes induced by whisky in these three factors are comparatively insignificant. It is interesting to note that though the velocity of the flow and the work of the heart are very slightly increased, the efficiency of the heart as a pump is decreased.

TABLE 4.—CHANGES INDUCED BY WHISKY

	Velocity	Work	Efficiency
15 minutes before alcohol.......	3,910	10.965	35.7
10 minutes before alcohol.......	4,012	11,266	35.9
5 minutes before alcohol.......	3,995	11,135	35.9
Alcohol			
1 minute after alcohol.........	4,032	11,424	35.3
5 minutes after alcohol........	3,956	11,610	34.1
10 minutes after alcohol........	4,012	11,438	35.3
15 minutes after alcohol........	3,825	11,220	34.1
20 minutes after alcohol........	3,956	11,352	34.9

CONCLUSIONS

From these experiments it is evident that even though whisky may raise for a few moments the systolic blood pressure, and thus act as an apparent circulatory stimulant, it can not be regarded as a true circulatory stimulant, inasmuch as it decreases cardiac efficiency, raises disproportionately the diastolic pressure, and lowers pulse pressure.

THE TREATMENT OF PSORIASIS WITH VACCINES

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The object of this paper is to call attention to the possible infectious origin of some cases of psoriasis, in the hope that it may direct attention to a new etiologic factor of this chronic and prevalent disease.

I wish to report three cases in full in the order in which I treated them. The treatment of the first two with vaccines was an accident and the last case reported was treated in this manner because the first two had responded so well.

REPORT OF CASES

Case 1.—Miss F., aged 32, psoriasis for three years on arms, legs, neck and chest. Patient was very miserable, had to wear high neck and long sleeves all the time. Couldn't sleep at night. Examination showed a gastric hyperacidity and catarrhal enteritis. I started treating and washing her stomach and using local treatment for the psoriasis. As the patient's general health improved the psoriasis improved but it did not disappear.

Five weeks after beginning treatment the patient caught cold and developed a tonsillitis and bronchitis. The psoriasis rapidly became worse and in three days it was as bad as it had ever been. I put her on an autogenous vaccine made from a culture from the tonsils and had the tonsils lanced. I had to stop treating her stomach as her throat was too sore to allow the passing of a tube, and the bismuth, *sodium* bicarbonate and magnesium oxid that I had been giving her irritated her throat. I gave her a dose of vaccine every three days and after the third dose the psoriasis was better than it had been since her arrival in Hot Springs.

In two weeks the psoriasis had entirely cleared up and in three weeks from the time that I began giving her vaccines she left for home entirely well. Miss F. left here March 1, 1914, and I received a card from her in November, 1914, saying that she had had no further sign of trouble.

When it is remembered that this patient was not nearly well after having had her stomach treated for five weeks, that the psoriasis became suddenly much worse following tonsillitis, and that an autogenous vaccine and draining of the tonsils caused an immediate improvement (in the psoriasis) and an ultimate elimination of it, it seems that only the vaccine could have been responsible.

Case 2.—Mr. B., aged 50. Patient had arthritis, aortic regurgitation, lumbago and psoriasis. Patient was sent here under directions of his home doctor and called on me for bath directions. *The patient would take nothing except what* his home physician had prescribed and he had innumerable pills and capsules to be taken under various conditions.

The patient took his baths and medicine as directed for four weeks with no improvement and finally, after corresponding with his physician, I obtained permission to give him vaccines for his arthritis. I put him on a mixed vaccine containing *Streptococcus pyogenes* 200,000,000; staphylococci combined 800,000,000, and *Micrococcus catarrhalis* 100,000,000 to the cubic centimeter. The patient at this time had a psoriasis on arms, legs, head and face. He had lost a great deal of his hair and made a very unprepossessing appearance, but I was giving him the vaccine for his arthritis and was not thinking of its doing the psoriasis any good.

Patient remained here sixteen days after the beginning of the vaccine treatment and was then called home. When he left the psoriasis had stopped scaling and itching and was entirely eliminated except for the erythematous spots where the lesions had been. Patient left here in June and reported to me in December that the psoriasis had never reappeared, although he had not been taking any care of himself and had been working every day.

Now this patient had continued taking his medicine from his home doctor, and the only change made in his treatment was the addition of vaccines, so I think that the vaccines were directly responsible for his improvement.

Case 3.—Mr. M., aged 38. Patient had had psoriasis for four years over the extensor surfaces of his arms, but about May, 1914, he became much worse with an extension of the disease to his legs and body, his back being especially badly broken out with large silvery patches, some of them the size of a dollar. He was otherwise normal in every way and had been taking the baths here and local treatment for seven weeks before I saw him.

In view of the two previous cases I put him on the same mixed vaccine that I had given to Patient 2 (Mr. B.). I took him off all local treatment and gave him 0.5 c.c. of vaccine the first day, followed by 0.75 c.c. two days later and 1 c.c. every three days from that on. I also gave him a light bath with a cool shower bath following, *each day*.

He began to look and feel better *within ten days and left* here in five weeks without a blemish.

In view of the preceding experiences I am now giving vaccines a more extensive test in all cases of psoriasis and I hope soon to be able to make a report on the subject that will mean something.

I know that the objection will be raised that we have always been able to control most cases of psoriasis by medicines and diet before vaccines were ever heard of, but we will remember we never treated any of these cases successfully in which we did not increase elimination, correct digestion and in every way attmept to improve the patient's general condition, and perhaps the general toning up that a great many of these patients received only helped them to build up more quickly an immunity to an infectious process.

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[28] Tigerstedt: Lehrbuch der Physiologie des Kreislaufs, Leipzig, 1893.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 828)

X

B. DEPRESSANTS: 6. HYDROCARBON NARCOTICS—(Continued)

GENERAL ANESTHETICS

CHLOROFORM AND ETHER GROUP—(B)

Every one who attempts to administer a general anesthetic at this period should have had a course of training in this special branch of medicine. In addition, the general practitioner would do well to read a fairly comprehensive treatise on the subject, such as that of Hewitt. Inasmuch as the general practitioner is called on at times to assume charge of patients who have been anesthetized, however, even though he may not have administered the anesthetic, this discussion will include a consideration of the more salient points.

It is remarkable that ether and nitrous oxid were known long before they came into use as general anesthetics. Ether was prepared by Valerius Cordus in 1540—three hundred years before its use in anesthesia. Humphrey Davy in 1805 observed that nitrous oxid relieved an aching tooth, and suggested the use of the gas in surgery, but the suggestion went unheeded. Nitrous oxid was first used in dentistry by Horace Wells of New Haven, in 1844. He attempted to give a public demonstration in the Harvard Medical School, but this proved a fiasco, subjecting him to ridicule, and later he killed himself.

"Ether parties" were popular about a century ago. Crawford W. Long, a physician of Georgia, observed that he and his companions sustained small hurts without feeling the pain while under the influence of ether; this led him to perform the first surgical operation during ether anesthesia in 1842. Long took little trouble to make the results of his experience widely known, and the first public operation under ether was performed by Warren at the Massachusetts General Hospital, Oct. 17, 1846. William G. T. Morton, a pupil of Wells, having learned of the action of nitrous oxid, had sought aid in its preparation from a chemist named Jackson, who had suggested the use of ether. Morton adopted the suggestion and attempted to keep the use a secret for personal gain, but he spent the remainder of his life in advocating and popularizing the use of ether.

Flourens announced in 1847 that chloroform acts much like ether on the lower animals, and Simpson of Edinburgh used chloroform as a general anesthetic in the same year.

Ether and chloroform were both used with little skill at this time, and Snow published the first comprehensive work on the subject in 1858. Ethyl chlorid anesthesia was known about as early as that of ether, but it attracted little attention for fifty years. A few years ago an effort was made to popularize ethyl chlorid, which was claimed to stand between ether and nitrous oxid in relative safety. This is not the case, and the use of ethyl chlorid is now limited to special cases.

Chloroform was the safer anesthetic at first owing to the want of understanding of the actions of ether. For many years a mixture of alcohol, chloroform and ether was popular in many countries. The use of ether has increased steadily, and at present it is employed to a far greater extent than chloroform for general anesthesia. Chloroform still has a distinct field of usefulness, however, and with the swing of the pendulum in favor of ether, it seems that certain disadvantages of the latter may be overlooked.

The administration of a general anesthetic is always attended with danger, and the physician realizes that he may be called on to defend his choice of anesthetic should it be his misfortune to have a patient succumb during its administration. It always appears easier to defend the choice of that which is sanctioned by common practice than that which is indicated by careful study of all the conditions present in any given case, when such conditions happen to indicate the use of the less popular anesthetic; therefore physicians tend to fall into the habit of selecting ether on all occasions regardless of whether it is best in a given case or not.

While statistics indicate pretty clearly that proportionally more deaths occur during the administration of chloroform than of ether, we are in need of a more comprehensive study with statistics of the ultimate dangers, including deaths which are indirectly attributable to the anesthetic. The "late chloroform deaths" have now become fairly well known, but many of the deaths from pneumonia which are due to the administration of ether are not reported as ether deaths. Ether is administered for minor surgical operations by professional anesthetists in many thousands of cases in which the patient, on regaining consciousness after the operation, passes from the anesthetist's care. If pneumonia develops several days later, the anesthetist may not so much as know that death resulted.

The following points are to be considered when choosing an anesthetic: sex and age (these are not usually very important, except where atheromatous arteries are to be expected); temperament; habits (alcoholism, etc.); general physique, obesity being unfavorable for chloroform and ether; respiratory and circulatory systems (difficulties present or anticipated in the respiration increase the risks of anesthesia). Morphinists are tolerant of chloroform and ether, but a dose of morphin administered to a morphinist just before the administration of an anesthetic makes this smoother. The mere bulk of the anesthetic is of importance on the battle-field, or where a sudden catastrophe demands the transportation of anesthetics for large numbers with insufficient facilities. In such cases nitrous oxid becomes impossible, and chloroform or ethyl chlorid is preferable. The time consumed in administering ether, especially in very hot weather and following battles, is also a great objection, and chloroform or ethyl chlorid is to be preferred on that account.

The actions on the central nervous system of chloroform, ether and ethyl chlorid resemble those of alcohol qualitatively in their essentials and need not be described in detail. It is of the first importance that these substances depress the higher parts of the brain and then the cord, while the medullary centers are affected to a much less extent.

The stage of excitement is important, but it is so commonly seen that it does not require detailed discussion here; it is important where high blood-pressure is to be feared, and in such cases anesthesia is frequently induced with chloroform or nitrous oxid and continued with ether. At present it is customary in many institutions to induce anesthesia with nitrous oxid as a routine measure, and then proceed with ether.

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* This is the tenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

With the administration of ether to man there is at first a sensation of suffocation and disturbance of the special senses, which are intensely disagreeable; chloroform is much less so. Excitement comes on after consciousness is disturbed. Sensation is commonly lost before the loss of motion in the voluntary muscles, and during this stage slight surgical operations, requiring but a minute or two, may be performed if muscular relaxation is not necessary, where there is no probability of severe injury which would give rise to injurious reflexes. With increasing depth of narcosis the reflexes are abolished, the winking reflex from touching the cornea being among the last to disappear, but not the very last.

During major surgical operations the effort is usually to maintain that depth of anesthesia in which the corneal reflex is abolished, since this suffices to secure muscular relaxation and the avoidance of severe reflex injury to the central nervous system which occurs with insufficient depth of anesthesia. On the other hand, if this stage is exceeded materially, the respiratory and vasomotor centers suffer and the respiration stops. With chloroform the heart stops almost immediately thereafter; with ether there is usually a slightly longer interval, during which the opportunity for resuscitation is greater than with chloroform.

The vasomotor and respiratory centers are not markedly depressed during a moderately prolonged anesthesia with ether, but the breathing is slower than normally, though it should be quite regular.

It is customary to discuss the action of the anesthetics on the respiratory and vasomotor centers separately, but the respiration and the circulation are so closely interdependent that it is impossible to injure one severely without injuring the other.

The respirations may be temporarily inhibited reflexly from the mucous membrane of the nose before the stage of deep anesthesia is reached, just as it may be in health by the inhalation of any irritant gas, but this does not occur during deep anesthesia. Irritation of the mucous membrane of the trachea may also give rise to persistent reflex inhibition of respiration, and this has caused death in some instances. When the respiration ceases early in the administration of anesthetics the respiratory passages should be examined carefully to insure that they are not the seat of obstruction or irritation from any cause. Of course, careful attention should be given to the air-passages before beginning the anesthesia, for it is obvious that interference with respiration in any way must prove dangerous. Imperfectly aerated blood causes a rise of blood-pressure, increasing the resistance against which the heart must contract, while it affords diminished nutrition to the heart, thus throwing an additional burden on it while it is enfeebled by lack of nutrition; this circulatory disturbance results in further injury to the respiratory center, establishing a vicious circle.

The circulation is subject to so many influences that it is difficult to determine in a given case the mechanism by which it may be disturbed. It is well known that ether, when administered properly for a moderate length of time, does not lower the blood-pressure.

The actions of anesthetics on the vasomotor centers have been the subject of much study but without any agreement, and we cannot determine whether the vasomotor center or the heart is responsible primarily for the fall which follows chloroform even with the greatest care. It seems probable that the heart and the vasomotor centers are but links in the chain which may be injured at either point.

With ether the blood-pressure may remain constant for several hours, but with the most careful administration of chloroform the pressure falls progressively, during which the heart evidently suffers.

The danger to the heart during the administration of chloroform is admitted by all, but this danger is variously explained. According to a view which has gained some acceptance, the heart becomes hyperexcitable and ventricular fibrillation results, with immediate failure of the circulation. It is maintained that overdosage has nothing to do with this effect, but on the contrary, that excessive caution has led to insufficient administration which favors hyperexcitability with the danger of fibrillation, whereas with the continuous administration of a sufficient amount of chloroform the ventricle is depressed so that hyperexcitability and the resulting fibrillation are impossible. The supporters of this view state that with a growing and excessive caution the number of deaths during the early part of chloroform anesthesia shows a marked increase.

It is maintained that anything which interferes with a smooth and uniform administration of chloroform increases the danger of ventricular fibrillation and that vagus inhibition is a source of danger only in so far as it interferes with a uniform condition of the circulation.

Every one admits the desirability of a smooth anesthesia, but it is not always attainable even with the greatest care.

The heart is subject to direct injury from the anesthetics in addition to the indirect through circulatory changes, chloroform being far more injurious directly than ether. The action of chloroform is dangerous at three different stages: soon after the inhalation is begun, and it may be before consciousness is lost; during the regular course of anesthesia; and one or several days after the anesthetization.

According to another view which has found wide acceptance, the source of danger to the heart early in the course of chloroform anesthesia is due to a combination of the direct action on the heart and the indirect through the vagus center as follows: When chloroform is carried to the heart in somewhat greater concentration than is desirable it causes the heart to become more susceptible to vagus control, and at the same time the vagus center is rendered hyperexcitable; at this time the irritation of the mucous membrane by the concentrated chloroform vapor sets up a strong reflex inhibition through the vagus center, causing the heart to stop. Vagus stimulation causes only a temporary stoppage of the normal heart, but when it pauses under the condition just cited the dilated chambers are filled with blood containing chloroform vapor in high concentration, and this vapor acting on the heart paralyzes it rapidly. It must be understood that this early danger to the heart may occur before the patient even loses consciousness, for one is prone to think that there is no danger so long as the reflexes are not abolished and the respiration and pulse are good. This danger is avoided by care in seeing that the chloroform is not inhaled in too great concentration and that the patient is not allowed to inhale too much of it when he begins suddenly to breathe deeply, as he may after a pause in the respiration.

The celebrated Hyderabad Commission overlooked this source of danger because they began their experiments by anesthetizing their dogs in a box where they were not easily observed. Even though they lost about 6 per cent. of their animals during the induction of anesthesia they were content to attribute all of these deaths to faulty technic or accident and did not investigate the cause further. In order to prove the real danger of concentrated vapor before consciousness is lost a later investigator succeeded in killing one-fourth of his dogs in this way intentionally.

Our discussion is not intended for the guidance of the expert anesthetist, who will rarely have any difficulty in avoiding overdosage, but the following experience illustrates the danger when chloroform is employed by those who are unskilled in its use: The medical students of a class who had previously used ether exclusively as the anesthetic in laboratory experiments were directed on one occasion to employ chloroform. Its nature was explained, and *extreme* caution was enjoined. Despite this caution too much chloroform was used with fatal results in nearly every one of the next series of experiments on dogs.

Chloroform causes a nearly constant fall in the blood-pressure, and the heart and respiration may fail rapidly at any stage of the operation, especially if the operation involves severe injury to nerve trunks with resulting reflex injury to the centers. Such injuries are more common with light anesthesia than with that stage where the corneal reflex is abolished.

The following will illustrate the advantages of a proper degree of anesthesia, that is, neither too light nor too deep:

In a series of laboratory experiments it was necessary to remove the entire gastro-intestinal tract of the dog without inducing shock. In the first of the series the anesthesia was only sufficiently deep to prevent the occurrence of pain; in every such experiment, the animal suffered severe shock and seldom showed subsequent improvement; in the remainder of the experiments the anesthesia was much deeper, and in only few of these did shock follow immediately this extremely severe operation.

The third stage of danger to the heart is attended with degeneration, which is not limited to the heart but involves the liver and other organs. While this degeneration is often found at necropsy in such cases, the cause of death is not known, for greater degeneration may occur from various other causes without causing death.

Ether cannot cause sudden death in a manner analogous to that described, early before consciousness is lost, but it may cause death during the operation, for ether is also directly injurious to the heart, though much less so than chloroform. The following laboratory experiment serves to illustrate the great difference in the toxicity of ether and chloroform for the heart. Three frogs' hearts are excised and placed one in Ringer's solution, another in Ringer's solution containing 0.25 per cent. of chloroform, and the third in Ringer's solution containing 2 per cent. of ether. The first heart continues to beat for an hour or more. The one subjected to the action of chloroform ceases to beat within a few seconds; if it be transferred at once to pure Ringer's solution it may possibly be made to beat again, but it is usually found to be permanently paralyzed. The third heart, which is subjected to the action of ether, will usually continue to beat for a few minutes and if transferred at once to pure Ringer's solution will resume regular beats.

This experiment serves to explain why the attempt to resuscitate patients when the respiration ceases after ether is successful more frequently than when the same accident occurs with chloroform. After the respiration ceases with ether the heart is usually capable of beating, whereas after the administration of chloroform the heart is usually so severely poisoned at the time the respiration ceases that it soon ceases to beat. Chloroform is said to be about 250 times as actively toxic to the heart as alcohol if compared in molecular proportions.

While so much stress is usually placed on the action of chloroform on the heart, Hewitt states that in practice the majority of chloroform deaths occurring during operations are due to intercurrent conditions which are often not recognized; these include asphyxial states leading to circulatory failure, swelling of the tissues surrounding the air-passages and interference with the free entrance of air, which may lead to circulatory failure in a susceptible patient.

The kidneys participate in the excretion of chloroform and ether, and frequently suffer injury, especially in the presence of a previous nephritis. Chloroform is much the more irritant, but so much more ether is required for anesthesia that it causes approximately as much damage to the kidney as chloroform.

The liver may also suffer degeneration, as previously mentioned, and the existence of hepatitis is a strong contra-indication for chloroform.

Ether causes a more copious secretion of saliva and also of mucus in the bronchial passages than does chloroform, and the saliva may be aspirated during sleep and give rise to pneumonia. Atropin administered previous to the anesthetic prevents this excessive secretion of saliva and mucus. This also suggests the necessity for oral antisepsis prior to anesthesia.

It is sometimes stated by surgeons that pneumonia follows ether anesthesia only as the result of carelessness, or through too great cooling of the body, but this is not correct; pneumonia may follow an extremely brief and carefully conducted etherization.

Ether, being quite soluble in the saliva, may be swallowed in sufficient amount to cause irritation of the stomach and give rise to nausea and vomiting. It is for this reason that slight nausea and vomiting are more common after ether than after chloroform, but severe and dangerous vomiting is more common after chloroform. The cause of this is not known.

Ether and chloroform are absorbed readily from the mucous surfaces, the rate of absorption during inhalation being proportional to the partial pressure of the vapor in the alveolar air, since the body temperature may be regarded as constant.

It is unnecessary to enter into a discussion here of the concentration of the vapor in the air and in the venous and arterial blood at the time of inducing anesthesia and during its maintenance. However important they are for the anesthetist, they belong to the more advanced study of the subject such as one finds in special treatises.

Cushny found that about 90 per cent. of the chloroform administered was excreted in the expired air during anesthesia, that the exhalation of volatile substances from the lungs is exactly analogous to their evaporation from aqueous solutions, and that the amount of a given anesthetic thus eliminated in the expired air depends on its affinity for water to a much greater extent than on its volatility. This explains why ether, which is more volatile than chloroform, but also more soluble in water, is retained in the blood more tenaciously.

The amount of ether present in the blood at the end of anesthesia is reduced to about one-half in from five to fifteen minutes, and at the end of two hours there is only about one-fortieth as much in the blood. Ether can be detected in the breath, however, for a day or longer after even a brief anesthetization.

Chloroform also disappears rapidly at first, and is reduced to one-fortieth the original amount in about seven hours, which is a seeming contradiction to what was said of the more rapid exhalation of ether, but the amount of chloroform present at the start was much less, and a small portion of the chloroform is capable of entering into a relatively stable combination with some constituent of the blood.

Buxton states that the administration of oxygen lessens the deleterious effects of chloroform on the different organs.

Ether is sometimes used as an active respiratory stimulant in emergencies, 30 or 40 minims being injected intramuscularly. The effects are sometimes striking, but of course the injections cannot be frequently repeated, and they are of service only in tiding over an emergency.

French surgeons have advised the use of large quantities of ether as an antiseptic in abdominal surgery, but it is difficult to see what special advantage it has for this purpose and certainly it is capable of causing serious injury.

The volatility of ether constitutes a serious objection to its use in extremely hot climates, for it is difficult to maintain smooth anesthesia with it in very hot weather. Its inflammability is less of an objection now that electric lights are so commonly in use.

THERAPEUTIC USES

The principal therapeutic uses of the anesthetics are too well known to require discussion, and unfortunately, we know far too little of the special indications for one or the other of these in a given case.

It is recognized of course that certain conditions serve as a contra-indication for one or the other of these, but we are frequently in the dark regarding other conditions which would undoubtedly serve as contra-indications were they known, for the deaths which occur on the operating-table would not occur if these contra-indications were known and the conditions recognized in those cases.

Ether causes more excitement than chloroform; hence it is contra-indicated where excitement with its attending high blood-pressure is dangerous, but this does not mean that ether cannot be used in such cases after anesthesia has been induced by chloroform or nitrous oxid. Chloroform does undoubtedly serve a most useful purpose in such cases.

Chloroform is certainly strongly contra-indicated where the operation is prolonged, because of the progressive injury to the heart. Ether is probably more dangerous where inflammation of the respiratory passages indicates danger of pneumonia.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 831)

XXIII

GERMAN MEASLES (RÖTHELN, RUBELLA)

This is a highly contagious germ disease, most frequently affecting children and youth. It generally occurs in epidemics, but a considerable number of persons exposed to the disease do not acquire it. While the germ has not been discovered, and though it is not known just how it is transmitted, the probability is that the secretions of the nose and throat are the means of spreading the infection. It is doubtful if the eruption or the desquamating epithelium carries the contagium. The stage of incubation is apparently long, averaging perhaps from about ten days to two weeks. The stage of invasion is rarely seen, as when it is first realized that the patient is ill, the eruption is present. The eruption is a maculopapular one, reddish, and rarely confluent. The papules are less raised than in measles; in fact, many points of eruption are purely macules. The color is brighter than that of measles. It occurs first on the chest and face, and then gradually spreads over the body, during the first twenty-four hours. Questioning of the person attacked often shows that there were slight rigors and some backache or headache or feelings of indisposition. The temperature is generally slight, rarely above 100 F.

A diagnostic symptom, enlargement of the postcervical glands, is almost invariably present, and these are found at the time of the beginning of the eruption. The eruption lasts but a few days, gradually fading, and sometimes leaves points of pigmentation or discoloration for some time longer. There may be considerable fine desquamation, or desquamation may be practically absent.

Complications are rare, and although the patient should be confined to the house, the infection is simple, and there are not likely to be any consequences.

It has been stated that the leukocytes are generally increased in number and that eosinophils are absent or diminished during the period of eruption.[8] More recently, Hess[9] found that "in almost all cases of German measles there was a definite increase in the lymphocytes, even preceding the appearance of an exanthem." Hess suggests that this lymphocytosis at the time of the appearance of the rash may serve to differentiate this disease from scarlet fever. Scarlet fever, it will be remembered, shows an increase of polymorphonuclear white cells in the early stages.

This disease requires, ordinarily, no real treatment. Simple cathartics should be given, the diet reduced, and the patient kept indoors until the eruption has disappeared. If the throat is irritated, an alkaline gargle should be used. The usual simple methods of preventing the infection of others should be carried out.

The disease should be made reportable, as it is so often confused with regular measles, and rarely has been confused with a mild scarlet fever. It is more likely to be confounded with various kinds of intestinal or food poisonings that cause eruption.

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[8] Arch. de méd. exper., November, 1906.

[9] Hess, A. F.: German Measles (Rubella): An Experimental Study, Arch. Int. Med., June, 1914, p. 913.

CHICKEN-POX; VARICELLA

This simple, acute, contagious disease, generally very mild, and rarely requiring any medication or treatment, need not be mentioned here except that it is frequently confused with small-pox. In many parts of the United States the frequent occurrence of small-pox necessitates that every physician should be alert tó differentiate these two diseases. The different points of diagnosis between mild small-pox and chicken-pox cannot be better stated than in the paper of Dr. H. W. Hill,[10] director of the Division of Epidemiology of the Minnesota State Board of Health. He states that 10,000 cases of small-pox occur annually in Minnesota alone, and that this large number is due primarily to non-vaccination, and secondarily to mistaken diagnoses, allowing the infection of others. Hill quotes statistics to show that in one investigation over a period of twenty-one years there were thirty times as many cases of small-pox and nearly two hundred times as many deaths occurring in the unvaccinated as in the vaccinated. Health boards should ponder this fact, and then act.

He states that several misconceptions of these two diseases are prevalent, namely, that chicken-pox occurs only in children; that the small-pox eruption does not invade the scalp; that the small-pox eruption alone invades the palms of the hands and the soles of the feet; and that chicken-pox lesions are not umbilicated. All of these points of supposed differential diagnosis are incorrect.

The differential points of chicken-pox and small-pox are as follows:

In chicken-pox: The incubation period is at least two weeks. There is no definite history of a previous attack of this disease. A history of successful vaccination within a few years, or a definite history of a previous small-pox causes presumption that the disease is chicken-pox. There is usually no history of a stage of illness before the eruptive stage. The eruption appears in the first twenty-four hours of the disease, beginning on the back, chest or face, and is most profuse on parts of the skin covered by clothing. The eruption appears in successive crops on successive or alternate days, so that various stages of the lesions may be present at one time. The lesions are round and oval, and the margins are not crenated. The eruption passes through the following stages: 1. Macules lasting a few hours. 2. Soft, superficial papules lasting a few hours. 3. Clear, thin-walled, tense vesicles each lasting a few hours (these vesicles may be readily broken and appear cupped or pitted, and the weeping vesicle then quickly becomes crusted). 4. The crusts, lasting a shorter or longer time, depending on the treatment (each crop completes its cycle from macule to crust in from two to four days). 5. Pitting may occur, but the pits are few, superficial, and often oval.

In small-pox: There is an incubation period of from twelve to fourteen days. There is no definite history of a previous attack of this disease, and no history of successful vaccination within from five to seven years. There is an invasion stage of from two to three days with headache, backache, chills, fever, etc. The first signs of eruption are on the third or fourth day after the onset of symptoms, and the eruption begins on the face and wrists, and is most profuse on the skin not covered by clothing, and the palms of the hands and the soles of the feet are often attacked. The eruption develops in one crop, the lesions appearing steadily from twenty-four to forty-eight hours, the face lesions being usually further developed than those on the body. The lesions are round at all stages, and the margins are not crenated; all those of the same stage of development are usually the same size. The lesions occur as flea-bite macules lasting twenty-four hours, and then as papules which feel "shotty" under the finger, also lasting twenty-four hours. The next stage is umbilication of the shotty-feeling vesicles, this lasting from twenty-four to seventy-two hours. Next firm, opaque pustules form, each lasting from four to six days, and this formation of pus is accompanied by what is termed the secondary fever of small-pox. Next, firm crusts appear at about the thirteenth day of the eruption, the fifteenth day from the beginning of the disease. Large, dense scabs form with tenacious, dark-colored plaques, which may last days, or even weeks, if the skin is not properly treated. Later, where there is marked pustulation, deep pitting occurs.

It is essential that chicken-pox cases should be early diagnosed, and that the patient should be isolated. A laxative should be given; the diet should be simple and without meat; warm baths, and powder to prevent itching, represent the only treatment generally required. Older patients should be cautioned, and children should be prevented from picking open the vesicles that occur on the face, thus preventing pitting. Young children should wear celluloid mittens.

SCARLET FEVER

No other acute infection varies so much in intensity as does scarlet fever. An attack may be so mild as to be entirely overlooked, or so serious as to make it one of the most dangerous of diseases. The activity of the germ of infection varies in different years and in different epidemics, some epidemics being characterized by their mildness and some by their intensity. This cannot be due to the difference in unprotected individuals, but must be due to characteristics of the germ in different years. Epidemics are most likely to occur in the fall and winter, although isolated cases may occur at any time. As the disease occurs most frequently in schoolchildren, and most frequently in the fall, gradually disappearing in the spring and summer, it is quite likely that the seasonal difference is related to its spread in the schools and the attacking of those who are susceptible, while later in the year all of the susceptibles who have been exposed have had the disease; it then gradually disappears, to begin again on the larger influx of susceptibles into the schools in the fall. Fewer persons are attacked by scarlet fever than by measles or whooping cough, which may show a natural immunity or insusceptibility. On the other hand, some families seem to present hypersusceptibility, such families having the disease in the severest form and with a high mortality. All ages and most peoples are susceptible to scarlet fever, but the large majority of deaths, stated at 90 per cent., are in children under 10 years of age. Young babies up to the age of 6 months, as in most other contagious diseases, are not likely to acquire this disease.

ETIOLOGY

Until recently it was thought that the erupted and desquamating skin carried the contagium of scarlet fever. Probably, even now, the majority of physicians are unwilling to believe that this disease is not diffused by the desquamating scales. It has been long considered proved that scarlet fever was thus caused because clothing or articles in contact with the patient, after being put away and long disused without sterilization, have caused infection of persons who have later come in contact with these articles. The possibility and fact that secretions from the nose and throat could have contaminated these articles has been entirely overlooked.

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[10] Hill, H. W.: Journal-Lancet, January, 1912, p. 1.

A specific germ for scarlet fever has not been discovered. While the streptococcus plays a distinct part in this disease, no form yet isolated has been proved to be the cause. That the infective agent occurs in the mouth and throat has been shown by injecting monkeys with scrapings from the tongue in the early stages of the disease.[1] Friedlander[2] has published a review of the streptococcus findings in the throat and in the blood, and the relationship of such streptococci of the disease to prognosis, etc. It has not been shown that the streptococci found in the throat in scarlet fever are different from streptococci that appear in other inflamed and membranous throats. Park[3] believes that streptococci are only a secondary infection in scarlet fever. Kolmer[4] and many others believe that it has not been proved that streptococcus immunization has any value as a prophylactic measure against this disease.

A fusiform bacillus has been found in the throats of scarlet fever patients by Klimenko.[5] He also found this bacillus in the spleen and liver of five out of seven children who had died of scarlet fever. The exact relationship of the bacillus to scarlet fever of course has not yet been determined.

Koessler,[6] after reviewing experimental study in this disease, concludes that "the serum of scarlet fever patients contains specific antibodies for an unknown virus," and that "this unknown virus seems to be present specifically in the cervical lymph nodes." Schultze[7] of New York first described a certain micrococcus which he had found in the throats of scarlet fever patients. It is stated that this micrococcus, which has been termed the "Micrococcus S," has been found in the mouth only in the early stages of the disease, and it is believed that this would prove that scarlet fever was contagious only during the early first stage. The organism was not found in the purulent discharges, or in the blood. While this coccus has been carefully described, it is admitted that it is distinguished at times with difficulty, and Ferry[8] states that it must be differentiated from the *Micrococcus catarrhalis,* the *Micrococcus tetragenus,* the *Micrococcus pharyngis siccus* and from the *Diplococcus intracellularis meningitidis.* It has not been proved that the Micrococcus S is the cause of scarlet fever, or that vaccines made from this germ, or from this germ and streptococci, or from streptococci, have curative action in scarlet fever, or have immunizing powers against scarlet fever.[9]

To sum up, we must declare that the germ of scarlet fever has not yet been discovered; that there is no doubt that the disease is spread by the secretions of the mouth, throat and probably nostrils; that the skin does not spread the contagium except as it becomes contaminated with these secretions; that the streptococcus plays a large part in the clinical course of the disease of scarlet fever, and that a patient may develop an actual septicemia, and this septicemia is frequently the cause of death. It certainly is a frequent cause of complications.

It is thought that scarlet fever is not infrequently caused by the milk of diseased cows, and some epidemics of sore throat with eruption have certainly presented all the marks of scarlet fever. It should be remembered, however, that septic sore throat has been scientifically traced to diseased cows, and that in septic sore throats, scarlatiniform as well as other eruptions not infrequently occur. It is probable that household pets, as cats and dogs, may transmit the contagium of scarlet fever.

The secretions of the mouth that carry the germ of this disease may infect any article that comes in contact with the patient, and this specific germ, whatever it may be, can apparently live for a long time in spite of heat, cold, drying or moisture, and cause infection months, if not years, later.

The incubation period of this disease is shorter than most of the other contagious diseases, and may be as short as one day, with an average of about three days. If the disease does not occur in the course of a week after exposure, the individual will apparently not acquire the disease from that contact.

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

SEROBACTERINS (See N. N. R., 1915, p. 329).

Cholera Serobacterin, Mulford (Sensitized Cholera Vaccine).—Marketed in packages of three syringes containing, respectively, 500 million, 1,000 million and 2,000 million killed sensitized cholera vibrios suspended in sterile physiologic saline solution.

Meningo-Serobacterin, Mulford (Sensitized Meningococcus Vaccine).—Marketed in packages of three syringes containing respectively, 1,000 million, 2,000 million and 2,000 million killed sensitized meningococci.

Typho-Serobacterin Mixed, Mulford (Sensitized Typhoid Vaccine).—Marketed in packages of three syringes containing, respectively, 1,000 million killed sensitized *Bacillus typhosus,* 500 million killed sensitized *Bacillus paratyphosus* "A" and 500 million killed sensitized *Bacillus paratyphosus* "B"; 2,000 million killed sensitized *Bacillus typhosus,* 1,000 million killed sensitized *Bacillus paratyphosus* "A" and 1,000 million killed sensitized *Bacillus paratyphosus* "B"; and 2,000 million killed sensitized *Bacillus typhosus,* 1,000 million killed sensitized *Bacillus paratyphosus* "A" and 1,000 million killed sensitized *Bacillus paratyphosus* "B".

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[1] Jampolis, Mark: Résumé on Infectious Diseases, Am. Jour. Dis. Child., June, 1912, p. 406.

[2] Friedlander: Interstate Med. Jour., January, 1913, p. 55.

[3] Park: Arch. Pediat., June, 1912.

[4] Kolmer, J. A.: Studies of Streptococcus Antibodies in Scarlet Fever with Special Reference to Complement Fixation Reactions, abstr., The Journal A. M. A., Dec. 9, 1911, p. 1942.

[5] Klimenko: Russk. Vrach, xiii, No. 8.

[6] Koessler, K. K.: Recent Advances in Our Knowledge of Scarlet Fever, The Journal A. M. A., Oct. 26, 1912, p. 1528.

[7] Schultze: Med. Rec., New York, Dec. 10, 1910.

[8] Ferry: Med. Rec., New York, May 23, 1914, p. 934.

[9] For some apparently satisfactory results see the Medical Record, New York, May 23, 1914, two papers.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 13, 1915

A FOREIGN VIEW OF COMPETITIVE ATHLETICS

On various occasions The Journal has entered a protest against the widespread tendency in the United States toward the extension of competitive athletics in schools.[1] The objections are manifold, and involve questions relating to the dominance of extracurriculum activities over the more serious aims of scholastic institutions, as well as problems concerning the health of the participants. Our concern with the subject has, however, been limited primarily to its hygienic aspects. The danger of overdoing—the abuse of the bodily powers—is the feature which has been foremost in the agitation. That it has not failed to arouse some interest in wider circles is attested by the comments of correspondents on our editorial attitude, as well as by a growing public concern in the matter at issue.

The contentions of The Journal are shared likewise by European authorities to whom the question of permitting students of various ages to engage in competitive sports has been submitted in a specific way by the Prussian government. In order to discover undeveloped athletic "talent" among the students of the high schools and universities of the German Empire, in anticipation of their being trained for the projected Olympic Games, a clever and presumably effective scheme was proposed. The German committee for the Olympiad suggested the institution of competitive games under the auspices of athletic associations in many places. The participants were to be students without previous special athletic training who would be enabled to demonstrate an inherent fitness in an open competition. The events were to include swimming matches, running and jumping contests of various orders, such as 100, 400 and 1,500 meter races, and numerous other exercises. Although it was assumed that such contests of the untrained would tend to spread broadcast the appreciation of the importance of physical exercise, yet the foremost underlying intent of the plan was undoubtedly to discover the exceptional candidate in order that he could subsequently be trained for the development of latent possibilities of athletic preeminence. From the latter point of view the aim of the German committee was well conceived.

The experts of the Prussian government have not sanctioned the proposed plan. It was submitted to the physiologist Rubner and the clinician Kraus, professors in the University of Berlin. In their report[2] they do not belittle the hygienic value of athletic sports, and they admit that competitive games frequently serve to awaken interest in the need of physical education and improved health through exercise. It is contended, however, that any system of athletics which finds its best expression in competition, and has as its chief end the development of athletic supremacy, fails to meet the real hygienic needs of youth and to serve for the proper perfection of the body. The excesses and the evils of athletics which have grown up in England and America, where this form of sport has received its greatest impetus, are brought home to the German committee. They are reminded that here the organization of competitive athletics is attended with an undue sacrifice of time at the expense of the intellectual pursuits. The contests degenerate into a public entertainment with all the drawbacks of the arena. The development of the body is carried out along lines of extreme specialization.

Physical exercise, if it is to be of real hygienic service, has an object quite different from the preparation of a specially equipped individual trained for a game. Exercise is intended to benefit all the muscles and all the pupils. Its aim is to advance the bodily equipment of the great numbers of our youth; otherwise our so-called physical education fails to serve the community at large. Athletic prowess necessitates taxing the organism to the very limit of its endurance; it is a dangerous expedient and should never become an experiment. The idea of athletic competition must not be transplanted to the schools, where it is certain to endanger the health of the average group of students.

The conclusions of Rubner and Kraus are not only to be endorsed, but deserve widespread publication because they ought to carry weight as sane judgments of competent observers. It does not matter here what the individual exercises are to which the German experts specifically object, and which the government is thus committed to exclude. They comprise particularly such trials as may unduly tax the heart and lungs. School authorities are reminded that races for schoolboys must not be made too strenuous; the exertion must not become too prolonged or too severe. The 400 and 1,500 meter races, for example, are forbidden. Pupils with heart affections, anemic individuals and young persons with impaired respiratory function are warned against participation. Exercise is intended to benefit, not to injure the individual. In the army and navy the more difficult forms of sport are permissible; but here we are dealing with a chosen group of well-trained subjects. They are prepared for the task of exertion.

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[1] Athletics in the Naval Academy, Current Comment, The Journal A. M. A., Feb. 25, 1911, p. 597; Effects of Strenuous Athletics in the Navy, editorial, Jan. 6, 1912, p. 40; Athletic Sports in Relation to Health, March 21, 1914, p. 936; Athletic Sport versus Competitive Athletics, April 4, 1914, p. 1094; The Hygiene of Athletic Sports—Rowing, April 11, 1914, p. 1172; Collegiate Athletic Sports, June 20, 1914, p. 1967; High School Athletics, Nov. 14, 1914, p. 1765.

[2] Rubner, M., and Kraus, F.: Gutachten der königlichen wissenschaftlichen Deputation für das Medizinalwesen vom 11 Februar 1914, betreffend sportliche Uebungen von Schülern, Vrtljschr. f. gerichtl. Med., 1914, xlviii, 304.

Let no one construe such checks on competitive games as a movement against physical training and gymnastics. The latter should receive every encouragement that a rational system deserves; but the propaganda for a recognition of the value of bodily exercise carried out in any suitable form must be based on a system of health-promoting practices. Competition belongs to the specialist, who must insure himself against the consequences. He should not be allowed to set the standard for athletic sports.

AURICULAR FIBRILLATION AND THE CHANGES IN THE SINUS NODE

Cardiac irregularities have increased in interest since the bundle of His and its function of impulse conduction became known. More recently the Keith-Flack node or sinus node, a bundle of fibers connecting the sinus region with the right auricle, has been described. This node is looked on as the pacemaker of the heart; consequently changes in its structure are regarded as especially significant with respect to abnormal cardiac action.

The sinus node is a closely interwoven bundle of fibers, resembling muscle fibers in structure. It is from 2 to 3 cm. in length, and lies in the region in which the superior vena cava joins the right auricle, that is, in the angle formed by the fusion of the superior cava with the right auricular appendix. On cross-section it is triangular or fusiform in shape, and throughout its course it is surrounded by adipose tissue or by connective tissue. The fibers at the upper end of the bundle join the muscle fibers of the wall of the superior cava, and at its lower end the fibers fuse with the musculature of the right auricle.

Hering[1] first described pathologic changes in the sinus node in a patient who clinically presented a marked irregularity of the heart of long duration. To this type of irregularity he gave the name "pulsus irregularis perpetuus"; more recently it has been termed auricular fibrillation. The normal auricular contraction is replaced by fibrillary contractions of the auricular fibers, several hundred of these occurring each minute. Only a few of them produce stimuli which pass through the bundle of His and produce ventricular contractions. In such a condition the fundamental rhythm of the heart is lost and the arrhythmia is persistent.

Since auricular fibrillation is of frequent occurrence, especially in elderly persons, the nodal region has been frequently examined to determine whether pathologic changes are present to account for the irregularity. Schönberg and others[2] found definite pathologic alterations in the node in cases of auricular fibrillation, such as fibrosis, inflammatory processes with round-cell infiltration, sclerotic changes in the blood vessels of the node, and compression of the nodal region by mediastinal processes. In many of these instances no other changes were present in the heart, and consequently the cardiac irregularity was considered to be a result of interference with the function of the node.

Many cases of auricular fibrillation, however, present normal sinus nodes. Of eight specimens examined by Jarisch,[3] only three had marked nodal alterations. Valvular disease with dilatation of the right auricle was present six times, endocarditis twice; sclerosis and syphilis of the vessels of the heart were each present once. In twenty-three examples collected from the literature, the node was intact five times, and only slightly affected six times. In the examples in which pathologic lesions were found, sclerosis of the bundle was present thirteen times, atrophy and inflammatory changes occasionally. The sinus node as a rule is hypertrophied when the auricular musculature is hypertrophied, and sclerotic when the auricular musculature is atrophied.

Thus it must be concluded that no one anatomic change is the substratum of auricular fibrillation. Nodal alterations may undoubtedly produce it, but other conditions, especially dilatation of the right auricle with thinning of the auricular musculature, are often responsible for the condition.

THE HARRISON ANTINARCOTIC LAW

The Journal has received many letters on the Harrison law during the past week. Some of these comment on or criticize statements made by The Journal; others ask questions that have already been answered; and still others raise new questions. The Journal is making every effort to get official information concerning the interpretation and administration of the law. Like most laws, its phraseology is not the product of any one mind. In the three years in which this bill was before Congress, it was frequently amended and several times rewritten. Few new laws are sufficiently explicit or detailed to provide for every case which may arise under them. In making rulings and interpretations, it is practically impossible for an official to foresee all the conditions which may arise or to estimate accurately the extent to which the regulations will carry out the intent of the law. Following the enactment of any law of importance and especially of any law on a new subject, there is always a period of uncertainty and indefiniteness as to just what the law really means and how its provisions will be applied. The first regulations prepared by the administration are often found to be inadequate and to need modification. It is, therefore, for a time largely a matter of individual opinion what any particular clause in a law may mean.

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[1] Hering: Deutsch. Arch. f. klin. Med., 1908, xciv, 185.

[2] Schönberg: Frankfurter Ztschr. f. Pathol., 1909, ii, 4. Koch: Berl. klin. Wchnschr., 1910, xxiv. Hedinger: Frankfurter Ztschr. f. Pathol., 1910, v, 2. Freud: Deutsch. Arch. f. klin. Med., 1912, cvi.

[3] Jarisch: Zur pathologischen Anatomie des "Pulsus irregularis perpetuus," Deutsch. Arch. f. klin. Med., 1914, cxv, 376.

This is the present situation regarding the Harrison law. The government officers charged with its administration are at present occupied in registering those entitled to licenses under the law, to issuing the licenses, checking up the list of applicants and preventing the grosser and more flagrant violations. It is impossible to expect any government official or any professional publication to answer the innumerable questions which are being asked or to make clear and definite statements regarding the exact limitations of the law. Experience, discussion and much careful consideration are necessary for the solution of some of the problems presented. In the meantime, physicians can only wait in patience, taking care to observe in every way the spirit of the new law and to take every possible precaution against unintentional violation of any of its provisions. Physicians are advised for the present to make a record of all preparations containing the specified drugs which they may give to their patients in any form. Unquestionably, some exceptions to this general rule will be made and definite rulings will be formulated by which the physician will know exactly what is required of him; this will require time. At present, some confusion exists. Evidently a large number of personal inquiries have been directed to the Commissioner of Internal Revenue at Washington, some of which have been answered by subordinates in different ways. Different interpretations have been placed on some of the regulations in bulletins issued by the various District Collectors. The Journal is endeavoring, by direct communication with the Commissioner, to secure official rulings on all the points which have been raised. It is also taking steps to protect the interests of physicians by placing before the proper officials the point of view of the medical profession and the extent to which this law will affect physicians. As fast as official rulings can be secured, they will be given to the readers of The Journal.

In the meantime, physicians are urged to keep in mind the general principles of the law and the purposes for which it was enacted. The law is not intended to, and does not, prevent the sale or distribution of habit-forming drugs for legitimate purposes. Neither does it undertake to limit the judgment of a physician as to the needs of his patient. It is intended to furnish a method by which all preparations containing opium or cocain can be traced from the importer to the ultimate consumer and their final disposition determined, and to limit the traffic in these drugs to responsible persons engaged in legitimate occupations. When the physician dispenses (i. e., when he takes the place of the druggist), then he must conform to the regulations for the druggist and must keep a record of all such drugs dispensed. These are the general principles. It is better to be too careful than not careful enough. For the present at least, the physician should make a record of all habit-forming drugs dispensed, whether to the office patient or to the patient at his home to be taken in the absence of the doctor. Modifications of this ruling may be made later, but until the exemptions are definitely determined, the letter of the law should be fully obeyed.

WAR SURGERY

An opportunity is now afforded to secure authentic information from military surgeons with regard to the immense experience in the present war of all sorts of wounds and pathologic conditions, by over fifty pages devoted to naval and military surgery in a recent issue of the *British Journal of Surgery.* Some of the material will be of interest to the surgeon in civil life. The number of infections in connection with land battles, and the lack of infection in wounds acquired in naval actions, are matters of special interest. Exposure to cold often proves serious for those wounded on shipboard, but in his article on "The Medical Aspects of Modern Warfare, With Special Reference to the Use of Hospital Ships," Charles A. Pannett of London says:

> It is astonishing how mild the infection of wounds has been. The absence of earth dust on ships and the fact that in many cases the wounds are washed by a longer or shorter immersion in the sea probably account for this. It is possible, for instance, in large, lacerated wounds of muscular masses such as those in the thigh, to suture the severed muscles and close the wound completely, with a very good prospect that healing will take place by first intention. The excellent physique of the men is a great factor in the success which follows these efforts, and it also accounts for the very striking absence of shock, and the readiness with which the patients rally under treatment from such shock as may be present. The sailor is an excellent surgical risk.

On the other hand, the writer of the notes on "A Visit to Some of the Military Hospitals of Paris and Boulogne" declares that among wounded soldiers there has been an "orgy of sepsis." He adds:

> Whether this can be prevented or lessened is the biggest surgical problem of the war. The cases in which it occurs are usually large lacerated wounds, caused by shell fire or by bullets striking compact bones and bursting out of the tissues.

The main reason for all the infections is the delay in dressing. Prevention, as every surgeon knows, is the watchword of efficiency in surgery against sepsis. "If surgery were the first instead of the last consideration of war, then, no doubt, arrangements could be made for all the serious wounds to be dressed on the field fully and properly." As this cannot be done, sepsis is almost inevitable, and the consequence is a great many serious, often fatal, septic conditions.

The worst septic complication of wounds that has been seen frequently during the present war is the so-called gas gangrene. There are a series of forms of this, and not all the cases are by any means necessarily identical with acute emphysematous gangrene. The cases as a rule begin as a cellulitis with much gas formation and rapid sloughing of tissues, and then gangrene eventually develops, running a rapid course. The causative agent has always so far been found to be some form of an anaerobic organism. It is not always the same organism. Pus is not produced in the early stages, but only sloughing and gas formation. Later on, if there is a reaction toward recovery, the pyogenic organisms gain a foothold and predominate in the condition, and pus is freely produced in the devitalized tissues. Frequent irrigation with hydrogen peroxid has done the most good. A stream of oxygen gas directly on the wound has given good results. "Lately Sir Almroth Wright has suggested placing gauze, wrung out of 5 per cent. salt solution, between the muscles and connective tissue planes, in order to encourage the outpouring of lymph. This has appeared to be an excellent method of treatment."

Lieut.-Col. C. B. Lawson of the Royal Army Medical Corps, and H. Beckwith Whitehouse, in a preliminary communication from Rouen on "The Treatment of Acute Emphysematous Gangrene," have a suggestion with regard to some of the worst of these cases that is most interesting. Patients suffering from the condition who appeared almost *in extremis* when they entered the hospital with extremely foul wounds, the tissues around edematous, devitalized and emphysematous, with typical blebs on the skin surrounding the wound, have been treated by a new method with hydrogen peroxid with life-saving results. "Small incisions were made into the *healthy tissues* above the infected area, and through these punctures hydrogen peroxid was pumped into the subcutaneous and subfascial planes by means of a Higginson syringe. The evolution of oxygen was rapid and the stump soon assumed enormous proportions, emitting a resonant note on percussion." At once the spread of the gangrene was arrested. The existing gangrene sloughed away, but the surrounding skin assumed its normal look and the circulation was reestablished. There was uninterrupted recovery. The cases reported cured are few, but were very severe, and the results secured are significant. Care must be taken to obviate shock and trauma of veins. There is some risk of air embolism, but so far no serious results have been noted. The hydrogen peroxid must be neutral in reaction. It should be injected warm and used plentifully.

Absolutely the best application to wounds in the field has been iodin. This has been used very freely. In spite of this copious use, no ill results have been seen from painting even very large wounds with iodin. A 2.5 per cent. alcoholic solution of iodin has proved much more effective than any other antiseptic used. As Dr. Morgan of London, who had experience with the wounded in Namur, says:

> One often felt that if only a small phial of iodin could have been poured on the wound first [before the first field dressing was applied] it would have been so much more efficacious.

Even with all the encouraging reports, the feeling is brought poignantly home to the reader that organization for the killing and maiming of men has far outdistanced that for caring for them after the maiming process has finished its work. This is not the fault of the medical services, but of the greater interest of government authorities in the development of the killing and maiming side of war rather than that of the preservation of the wounded. Perhaps some day it will be different.

THE MILLING OF CORN (MAIZE) FLOUR AND ITS RELATION TO HEALTH

Soon after the earlier demonstrations that the essential cause of beriberi was to be sought in a nutritive defect, and that highly polished rice gave rise to the disease whereas whole rice did not, attention was centered on the chemical composition of the rice polishings.[1] Among the components of the grain lost in the milling process are substances containing phosphorus. It has been shown that the symptoms of beriberi are not due to a deficit of this element, and that the organic compounds yielding it are not the agents in polishings which prevent the disease. Nevertheless it has been suggested that inasmuch as the essential substance and the higher phosphorus content accompany each other in the outer layers or pericarp of the grain, the amount of phosphorus could be used as an indicator of the disease-producing potency of the rice. On this basis practical rules were formulated as to what constitutes a polished rice.

It has been suggested that if the "vitamin" and the phosphorus compounds are associated in one grain they are likely to be found in the same layers of other grains also. Dr. McCrae,[2] government analyst for the Transvaal in the chemical laboratories at Johannesburg, has accordingly analyzed a number of samples of maize and its wastes obtained from mills on the Witwatersrand, Transvaal, in order to measure suspected loss of essential substances in the usual production of maize meal or flour. The phosphoric acid content was used as an index. In every case it was found that the fine meal contained not more than four-fifths of the phosphorus present in the original grain.

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[1] The Relation of Rice to Certain Diseases, editorial, The Journal A. M. A., Feb. 24, 1912, p. 556; Beriberi, Rice and Beans, April 13, 1912, p. 1119; Recent Japanese Investigations on Rice Bran in Relation to Disease, Sept. 14, 1912, p. 883; The Supposed Significance of Phosphorus Compounds in the Development of Polyneuritis and Beriberi, Nov. 16, 1912, p. 1801; Flavors and Vitamins, Current Comment, Dec. 26, 1914, p. 2296.

[2] McCrae, J.: The Phosphoric Oxid Content of Maize Flour, Jour. Hyg., 1914, xiv, 395.

Although a loss of this sort always takes place in the conversion of the maize into flour, the presumption of McCrae that concomitantly there was a loss of "vitamin" remains to be proved. The loss of pericarp is not so considerable by any means as takes place in the polishing of rice. Nevertheless it seemed desirable to ascertain whether, by milling the grain in such a way as to minimize the loss of phosphorus (and "vitamin"?), the flour would be improved. This has been accomplished for experimental purposes by altering the processes in such a way that 96 per cent. of the original grain was converted into fine meal passing a 30-mesh sieve. The loss of phosphorus is thereby reduced to a minimum. Dietary experiments on a very large scale are in progress with the new and old types of meal furnished to several thousand native laborers in the gold mines, among whom maize meal is a staple article in the diet. It is tentatively reported[2] that the incidence of disease among those using the new type of meal is much lower than among those eating the old type. No intestinal disturbances due to the use of the ground whole maize have been reported. McCrae believes the conclusion to be justified that fine white meal, produced after removal of the husk and a considerable proportion of the germinal part of the maize, is defective food which may give rise to some form of deficiency disease. If by grinding the maize in such a way that practically the whole of the grain is converted into fine meal this defect is remedied, considerable dietary advantage will accrue. To us it seems rather early to accept McCrae's conclusions as final. Nevertheless, we appreciate the importance of the technical problem solved. The possibility of marketing some of our cereal grains and certain other plant products in the form of fine powders which contain practically all of the original ingredients, without loss by milling and grinding, ought to have some importance amid the present uncertainty regarding food deficiencies and the preservation of the natural components of foods.

Sanatoriums for the Treatment of Tuberculosis.—It is said that Massachusetts has five state sanatoriums for the treatment of tuberculosis, with a capacity of 1,100 patients, and 32 city sanatoriums with a capacity of 1,359. Connecticut has 4 state and 5 city sanatoriums. Ohio has 20 county institutions. Wisconsin has 8 and 1 in preparation. California has 5 city sanatoriums. Indiana and Iowa each 4 county sanatoriums. Kentucky has voted 4 levies. Michigan has 3 in operation and taxes levied for 3 more. New Jersey has 5, Illinois 2 and Texas is now building 5. Illinois, Kentucky and California have no state institutions, and there are 14 states without county or city sanatoriums in operation.

Current Comment

AID FOR BELGIAN PHYSICIANS

It would be merely repeating what everyone knows to state that conditions in Belgium are terrible beyond description, and that human beings are literally starving. Various methods have been adopted to improve the conditions, but most of them have been more or less general. In addition there have been developed methods for relief by groups, among which is that conducted by the Committee of American Physicians for the Aid of the Belgian Profession. Specifically, the object of this committee is to relieve only members of the medical profession in Belgium. The contributions that have been received by the committee have been reported in our news columns week by week. It will be noticed that these contributions usually run above $5.00, although once in a while someone sends in $1.00. *And yet there are thousands of physicians* who are not able to give $5.00, but who would gladly contribute a smaller amount. We want to emphasize at this time what was suggested incidentally last week —that officers of medical societies could render great help to the committee by giving the members an opportunity to make contributions—small or large as the case might be—and let the total amount be credited to the society. This is one way of showing the efficacy of organization. The presentation of this humanitarian work to the members would, most assuredly, be aiding a good cause. It would permit the collection of small amounts, which though slight in themselves, would aggregate an effective sum. As will be noticed, last week there were four societies which contributed, and this week there are three more. If the number of small contributions can be increased, the most complete results will be achieved.

THE ECONOMIC ADVANTAGE OF EXTERMINATING DANGEROUS ANIMAL PESTS

There is no longer any novelty in the statement that health is a purchasable commodity. It would require little effort to instance numerous typical cases in which the institution of hygienic measures through public agencies has resulted in a conservation of human life important in itself and out of all proportion, in its beneficent consequences, to the expenditure of effort or money involved. Aside from the classic illustration of what has been accomplished in the Panama Canal Zone, we may recall the additional familiar experience in the eradication of bubonic plague from the cities on our Pacific coast. The infection of the rat—the source of the disease as it is communicated to man—was carried to the ground squirrels of California. After the recognition of this added danger, the United States Public Health Service caused a reduction in the number of these animals, in that state estimated at 90 per cent., from July, 1913, to November, 1914. The destruction of the animals involved an area of 3,373,146 acres, which includes about 2,000 miles of railroad right of way. The average cost for labor and materials has been about 17.4 cents per acre, and the average infestation has been about 6.5 squirrels per acre. As a result, it is believed that, for all practical purposes, bubonic plague has been eradicated from the state of California. It is a scarcely anticipated consequence of this campaign in the interest of public health that the destruction of animal pests on this extensive scale incidentally has resulted in large economic advantages. The destroyed ground squirrels have caused great losses each year through damage done in the most diverse ways: Growing crops have been eaten or destroyed; nursery stock has been damaged; the burrows made into the banks of irrigation ditches and canal banks have resulted in floods with attending disasters and financial loss. Frequent interruptions to railroad traffic have occurred through cave-ins in railroad cuts and washouts in embankments that have had their beginning through flood or surface water finding its way through a ground-squirrel burrow to a place where damage could result. In addition, even though washouts did not occur, subsidence of ties and rails took place because of individual burrows or colonies caving in, with resulting increase in maintenance-of-way charges and repairs to rolling stock and rails, due to pounding, and on rail ends and joints. An investigation by the Public Health Service[1] has revealed something regarding the unexpected magnitude, in dollars and cents, of the savings resulting from the antisquirrel campaign aside from the conservation of human life. Twenty-one persons reported savings of over $2,000 in repairs to irrigational canal banks; twenty-two reported an average saving of $99 per person on young trees; even greater advantages were reported in respect to stored grains. Satisfaction was widely expressed, and from 497 replies received it appears that an average expenditure of 11.2 cents per acre in squirrel extermination brought an estimated saving of 34 cents per acre—a return of 300 per cent. the first year.

THE HEN AS A POSSIBLE TYPHOID CARRIER

The problem of the carrier in various infectious diseases has long vexed the sanitarian who is bent on discovering every possible mode of transmission and every portal of entry for the pathogenic organisms. Human carriers of typhoid and diphtheria germs, themselves immune to attacks of the malady, are now watched for in nearly every community, and the danger which they represent as a latent source of infection is clearly recognized. Doubtless, many of these possibilities for spreading disease without the presence of detectable symptoms are still unrecognized. In the case of the *Bacillus typhosus,* it has been shown that some of the lower animals may, by experimental methods, be made typhoid carriers; and attention has lately been directed to such animals as might be expected to become carriers by reason of their environment or habits. Mitchell and Bloomer[2] of the bacteriologic laboratory of the University of Missouri have accordingly pointed out that the chicken is a domestic animal which might often come into contact with typhoid excreta. If given an opportunity this animal will readily partake of feces, and the practice may be observed in a locality in which open closets abound. The droppings of chickens are so widely scattered that they could become a serious source of danger should they contain typhoid bacilli. Mitchell and Bloomer remark that the mechanical transference of typhoid bacilli on the feet and bill of a chicken does, without question, occur; but such transmission cannot be called "carrier transmission," which refers to the harboring and multiplication of the germs within the body. By various methods of administering *Bacillus typhosus,* either in stock cultures or in infected excreta, to hens, they have attempted to follow the fate of the micro-organism and particularly their possible reappearance in the droppings of the fowls. From the work of the Missouri bacteriologists it would seem that the hen is highly resistant to the typhoid organism. It not only fails to take the disease, but apparently cannot be made a carrier by feeding with the bacilli or by intravenous inoculation. The data are perhaps too meager as yet to permit a final pronouncement; but the preliminary indications at any rate are negative.

THE STERILITY OF NORMAL HUMAN URINE

We presume that few, if any, persons would hesitate to designate the normal urine of healthy man as a secretion free from micro-organisms. This conclusion seems to follow as a logical consequence from the fact that innumerable negative cultural results have been obtained after inoculation of laboratory mediums with fresh urine or its centrifugal deposits. Urine carefully collected into a sterile flask and allowed to stand at room temperature may ordinarily be kept for long periods without any visible signs of bacterial contamination such as would be furnished by the clouding of the fluid with growths of micro-organisms. Recent experiments, conducted by Hort[1] at the Lister Institute in London, show that evidence of the foregoing character is scarcely admissible on theoretical grounds, and is not even valid in fact. It is conceivable that incubation of the urine at body temperature may be necessary to allow the multiplication of infecting organisms to take place. Indeed, the use of incubated urine as the medium of growth shows it to be a highly sensitive and reliable indicator of infection with organisms that appear to be extraneous. Except in the case of broth inoculated with uncentrifuged urine, absence of growth on the ordinary laboratory mediums inoculated with fresh urine or its centrifuged deposit appears to be of little value as an index of the sterility of the normal urine. According to Hort's observation, when suitable culture technic is employed it is difficult, if not impossible, to obtain sterile specimens of urine either by the catheter method of collection as ordinarily carried out or by the "serial" method, whereby the discharge is conducted into a series of receptacles and only the last members of the series are reserved for examination. In either case, unsterilized air through which the urine passes during the process appears to be a frequent source of the extraneous infection of the urine. A more satisfactory method of determining whether normal urine is or is not sterile before it leaves the bladder would be to obtain a sample by suprapubic puncture during life. In man this procedure has obvious disadvantages. From specimens of animal urine obtained in this way by Hort and Ingram, it is concluded that the normal renal secretion of cattle, sheep and guinea-pigs, provided they are healthy, is probably sterile. Normal human urine is therefore in all probability likewise sterile; but the British investigators insist that a rigorous proof of this is still to be furnished.

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[1] Long, J. D.: The Economy of Ground Squirrel Destruction, Public Health Rep., 1914, xxix, 3317.

[2] Mitchell, O. W. H., and Bloomer, G. T.: Experimental Study of the Chicken as a Possible Typhoid Carrier, Jour. Med. Research, 1914, xxxi, 247.

[1] Hort, E. C.: The Sterility of Normal Urine in Man, Jour. Hyg., 1914, xiv, 509.

OCCURRENCE OF BACILLUS AEROGENES CAPSULATUS IN THE FECES

The "gas bacillus," *Bacillus aerogenes capsulatus,* has long been looked on as an organism of undesirable attributes, its existence being associated with untoward consequences when it is present in any considerable numbers. This micro-organism has gained an etiologic significance in connection with a variety of abnormal states; and it has even been described as a causative factor in pernicious anemia, in which it was supposed to be present in undue abundance in the alimentary tract.[1] There is no doubt about the widespread distribution of Welch's bacillus in nature, especially in the soil, milk and water of certain regions. Its relation to surgical injuries and to wounds was recently discussed in connection with the bacteriology of the wounds in the present European war,[2] its ultimate source being ascribed to the soil contaminated by dejecta containing the organism. The severe symptoms which the *Bacillus aerogenes capsulatus* may be responsible for in some of the cases here referred to have of themselves shrouded the finding of the organism anywhere with an imputation of pathogenicity. The question as to whether the "gas bacillus" is really an unusual and dangerous invader of the alimentary tract, or a customary frequenter of this region of the body, has lately been considered by several investigators.[3] In eighteen children suffering from minor ailments but without marked derangement of the intestinal tract, Knox and Ford isolated the Welch bacillus from the dejecta on the first examination in nine cases. The identifications were always insured by inoculation experiments revealing gaseous edema in animals and positive cultures from the organs and tissues. In the nine other cases, although the organism was not obtained on the first trial, subsequent examination revealed it in all instances. In seven breast-fed infants, the dejecta were negative in respect to the reaction for the gas bacillus. Knox and Ford conclude that, in view of their inquiry, the *Bacillus aerogenes capsulatus* must be regarded as a normal and constant inhabitant of the intestinal tract in children except in breast-fed infants. Similar results were obtained by Orton at the Worcester State Hospital. Knox and Ford add that the attaching of any pathologic significance to the presence of this organism in the intestine can therefore properly be made only when evidence can also be adduced to show its excessive development.

MAJOR-GENERAL GORGAS

For the first time in our history a physician holds the rank of major-general. Regenerator of Havana, preserver of the Panama Canal, surgeon-general of the army, president of the American Medical Association, scientific physician and knightly gentleman, congress could honor General Gorgas only by creating a new precedent. In fitting company with Goethals, who dug the canal, stands Gorgas who kept the men alive while they dug it. With this new rank goes the thanks of congress and a life appointment as surgeon-general. The reward, unprecedented as it is, is in due proportion to the magnitude of the work. A canal has been completed, uniting two great oceans, realizing the dreams of civilization for four hundred years. A pestilential tropical swamp has become a health resort. Not only the nation, but the world has been taught the value of scientific sanitation. The toils, the struggles, the difficulties of the past are forgotten, the work is completed, the honors are fairly and equally awarded to the two men who made the canal possible. All honor to Major-Generals Goethals and Gorgas and to the men and the professions they so nobly represent.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. Norman Bridge has been elected president of the Los Angeles Society for the Study and Prevention of Tuberculosis.——Dr. Walter B. Power, Redlands, who has been working with the Red Cross units in France, has returned to America.——Surgeon Claude C. Pierce, U. S. P. H. S., has been detailed as sanitary inspector of the Panama-Pacific Exposition, San Francisco.——Dr. Edward von Adelung, Oakland, has returned from abroad.——A reception was given in honor of Dr. Adelaide Brown, San Francisco, recently appointed a member of the State Board of Health, by the members of the San Francisco Center, February 21.

Psychopathic Hospital Opened.—The Los Angeles County Psychopathic Hospital recently erected on the grounds of the County Hospital has been opened as the psychiatric department of the institution. It has a complete therapeutic equipment and can accommodate about seventy-five patients. It is intended to serve as a place of detention for insane suspects until their cases can be studied and disposition made of the patients. It is also intended to furnish treatment for acute cases and to serve as a center for the dissemination of information regarding the insane among the general public and it is stationed for field work. It will also furnish students and physicians excellent facilities for the study of psychiatry. Dr. Charles L. Allen, Los Angeles, is in charge of the department.

COLORADO

Physician Exonerated.—In the case of Dr. Floyd W. Noble, Denver, charged with the death of Ruth K. Merriweather by an illegal operation, the jury declared the defendant not guilty, March 2.

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[1] Herter, C. A.: The Common Bacterial Infections of the Digestive Tract, New York, 1907.

[2] The Bacteriology of the Wounds in the War, editorial, The Journal A. M. A., Jan. 30, 1915, p. 438.

[3] Orton: A Note on the Occurrence of B. Aerogenes Capsulatus in an Epidemic of Dysentery and in the Normal, Jour. Med. Research, xxix, 287; Knox, J. H. M., Jr., and Ford, W. W.: The Occurrence of Bacterium Welchii (Bacillus Aerogenes Capsulatus) in the Dejecta of Children. Bull. Johns Hopkins Hosp., 1915, xxvi, 27.

Personal.—Dr. Walter S. Scott has been appointed chief surgeon of St. Anthony's Hospital, Denver.——Dr. James E. Vance, LaSalle, has been appointed local railway surgeon at LaSalle, vice Dr. Augustus E. Greene, LaSalle.

Health Board to Move.—The new headquarters of the Pueblo City Health Department at the City Hall have been completed and are now in occupancy. The bacteriologic laboratory, which has been located in the central block, has been transferred to the laboratory room at the new headquarters.

IDAHO

Personal.—Dr. D. Orr Poynter, Montpelier, formerly assistant superintendent of the Southern Idaho Hospital, Blackfoot, has been appointed medical superintendent of the institution, succeeding Dr. George E. Hyde, Blackfoot.——Dr. Frank S. Wright has been appointed health officer of Salmon and physician of Lemhi County.——Dr. Warner H. Carithers has been appointed physician of Latah County.

ILLINOIS

Personal.—Dr. Frank R. Frazier, Yorkville, was operated on at the Presbyterian Hospital, Chicago, March 3.——Dr. Gilbert L. Bailey, Oak Park, sailed for Germany, March 2, to take charge of an American Red Cross hospital.——Dr. C. E. Fidler, Canton, who has been ill in a hospital for a long while, has recovered and resumed practice.

Opens Institutions to Drug Users.—Anticipating the hardships of habitual drug users which will follow the going into effect of the Harrison antinarcotic law, Governor Dunne issued a statement, March 5, advising drug addicts to apply to the county courts of their respective counties for treatment at one of the state institutions. The authorities of the state hospitals at Kankakee, Elgin, Anna, Watertown, Peoria, Jacksonville and Dunning have been instructed to receive and treat all such applicants. It is announced that the Cook County Hospital will be opened to drug victims, many of whom are in much distress since the taking effect of the Harrison antinarcotic law. They are now unable to obtain the drug which they formerly depended on to keep them comfortable. Cook County Hospital has not hitherto received drug victims. A number of them are also to undergo treatment in the Bridewell. A number of suicides or attempted suicides have been reported of drug victims who were unable to obtain their regular "dope."

Auxiliary Medical Society.—A number of organizations of Freeport, including the Woman's Club, Board of Education, Associated Charities, school superintendents and principals, Chamber of Commerce, Ministerial Association, Nurses' Association, Settlement Home, King's Daughters, Parents-Teachers' Association, Amity Society, Antituberculosis League, Dental Association, Stephenson County Medical Society, Y. M. C. A. and Y. W. C. A. Auxiliary, Catholic Woman's Club, St. Mary's Relief Society and St. Ann's Society, met March 1 to organize an auxiliary body to the Freeport Academy of Medicine and Surgery, with the especial idea of promoting the educational and social welfare of the general public. It is proposed to have popular lectures on health and welfare topics about every two months. The first of these is to be given March 16 by Dr. James P. Simonds, Chicago, on "Community and the Home—Their Reciprocal Sanitary Relations, and the Full-Time Health Officer." In May, Dr. Frank Allport, Chicago, will lecture on "Medical Inspection of Schools and the Health and Welfare of the School Child."

Chicago

Public Health Laboratory in Chicago.—The United States Public Health Service has established a laboratory for the analysis of food and water in the Marine Hospital, Chicago, and has detailed Assistant-Surgeon Charles L. Williams, U. S. P. H. S., and Sanitary Engineer H. P. Letton to take charge of the work under the direction of Surgeon Julius O. Cobb, commander in Chicago.

Fight on Blindness.—At a lunch, March 6, given by Mr. Bryan Lathrop, president of the newly formed Society for the Prevention of Blindness, the first steps were taken toward arousing public sentiment in favor of legislation for the prevention of blindness. Mr. Edward Van Cleve, head of the New York Institution for the Education of the Blind, delivered an address. The society has urged the following preventive measures: License and registration of all midwives; compulsory application of nitrate of silver to the eyes at birth; annual examination of schoolchildren by public schoolteachers; treatment of children suffering from eye disease and regulations to prevent industrial accidents to eyes.

IOWA

Personal.—Dr. John W. Fowler, Dubuque, who has been seriously ill in a hospital in Milwaukee, is reported to be convalescent.——Dr. M. Charles Mackin, Clarinda, has assumed his new duties as superintendent of the Iowa State Hospital for Inebriates, Knoxville.

Smallpox at Davenport.—Under date of March 2 it was reported that there were about seventy-five cases of smallpox in Davenport with indications of the extensive spread of the epidemic. An additional school has been closed and the city authorities have concluded to provide for an assistant to the city health officer to carry on the work of vaccination and quarantine. Health Officer Middleton is authority for the statement that two members of a religious sect which does not believe in medical treatment while afflicted with mild cases of smallpox walked the streets of the city for two or three weeks, and undoubtedly hundreds were exposed to this source alone. The disease was said to be costing the city $100 a day. There were fifty-five cases during February.

MARYLAND

Personal.—Dr. James M. Delevett, Baltimore, was slightly injured in an automobile accident, recently.——Dr. J. H. Jarrett, Towson, celebrated his eighty-third birthday anniversary, February 24.——Dr. Harry Deibel, Baltimore, was seriously injured in an automobile wreck near Brooklyn, Md., recently.

Report of South End Hospital.—The annual report of the South Baltimore Eye, Ear, Nose and Throat Hospital shows that there were 4,046 new patients treated during the past year. Of this number 3,704 were white and 342 colored. The number of house patients was 493, to whom 2,065 days' treatment was furnished. Of this 447 days were paid for in part or in full, while 1,618 were furnished free. Dr. Harry E. Peterman, Baltimore, was elected recording-secretary for the board of directors.

MASSACHUSETTS

Boycott by the Antivaccinationists.—It is reported that the New England Antivivisection Society want Wellesley and Mount Holyoke colleges boycotted by parents because they insist on having all entering freshmen vaccinated.

Tuberculosis Building Favored.—A bill authorizing the trustees of the Hospital for Consumptives of Boston to hire beds not exceeding 100 in number, for tuberculosis patients in Boston until July 1, 1915, has been reported on favorably by the committee on public health.

Personal.—Dr. Otho L. Schofield has been reelected selectman of Wellesley.——Dr. Fred S. Smith has been reelected a member of the school committee and Dr. Edward W. A. Holt a member of the Board of Health of North Andover.——Dr. John J. Deacy has been elected physician to the Board of Health of Lawrence.

Health Commissioner Names Inspectors.—Dr. Allen J. McLaughlin, health commissioner of Massachusetts, has announced as the result of an examination recently held the selection of the following eight sanitary inspectors: Drs. Lyman A. Jones, North Adams; William H. Coon, Haverhill; Merrill E. Champion, Arlington; Adam S. MacKnight, Fall River; William W. Walcott, Natick; Charles E. Simpson, Lowell; John S. Hitchcock, Northampton, and Frank L. Morse, Somerville.

Bostonians Want Creel.—President Lowell of Harvard University, President McLaurin of the Boston Institute of Technology, President T. W. Sedgwick of the American Public Health Association and State Health Commissioner Allen J. McLaughlin are said to have sent a petition to Surgeon-General Rupert Blue, U. S. P. H. S., urging him to reconsider his refusal to grant a leave of absence to Surgeon Richard H. Creel, that he might become head of the Boston Health Department.

Chapin Memorial Tablet Installed.—On March 3 a bronze tablet and memorial placed on the wall of the reception room of the Chapin Memorial Building of the Springfield Hospital was completed and installed. The tablet is about 5 feet 6 inches by 2 feet 10 inches, is of bronze, and bears a medallion of Dr. Chapin with an inscription reading as follows: "Fred Wilcox Chapin, Physician and Surgeon. Born at Middletown, Connecticut, November 17, 1849. Died at Springfield, Massachusetts, December 15, 1910. This building was erected to his honor and memory through the generous gifts of these relatives and friends." Then follows the names of 104 contributors to the building fund.

MISSOURI

Mayo in Kansas City.—Dr. Charles H. Mayo was the guest of honor at the twentieth annual banquet of the Kansas City Academy of Medicine, February 27. Dr. Jefferson D. Griffith presided and Dr. Mayo delivered an address on "Why Gastro-Enterostomy Fails to Cure."

Personal.—Dr. Walter S. Wheeler tendered his resignation as health commissioner of Kansas City, to take effect April 1. A successor has not been appointed. Dr. Wheeler has filled the office for eight years, being the first health commissioner appointed under the new charter.——Dr. Frank M. Ryan, Maryville, has been appointed county physician and health officer of Nodaway County.——Dr. Willard C. Proud and family, Oregon, have returned from abroad.——Dr. George C. Mosher, Kansas City, was operated on at the German Hospital, February 27, and is reported to be doing well.

St. Louis

Personal.—The house of Dr. Jacob J. Singer was burned February 17. Dr. Singer and his family made their escape by dropping from a second-story window.——Dr. William F. Kier was beaten and robbed in his office, February 5.

Endowment Fund for Skin and Cancer Hospital Increased.—The endowment fund of the Barnard Free Skin and Cancer Hospital has been increased so that it almost reaches the intended amount of $400,000. Acting under the instructions of the board of directors, the medical board has reorganized the research department of the hospital, and Dr. George M. Smith, associate professor of pathology in Washington University, has accepted the position of director of the hospital and research department and will enter on his duties April 1.

MONTANA

New Hospital.—The new hospital at Terry, with accommodations for fourteen patients, is practically completed and will soon be ready to receive patients.

Personal.—Dr. William C. Almas, Butte, on his own request has been committed to the State Hospital, Warm Springs.——Dr. Helen C. Roberts has been elected president of the Great Falls Federation of Women's Societies.

NEW MEXICO

Army Sanatorium Commandant Honored.—Col. George E. Bushnell, M. C., U. S. Army, in charge of the United States General Hospital, Fort Bayard, for the last eight years, and his staff, were the guests of honor at a banquet given by the Chamber of Commerce of Silver City, February 26. Dr. Earl S. Bullock, Silver City, medical director of the New Mexico Cottage Sanatorium, spoke of Colonel Bushnell's work in medicine and his achievements in the line of tuberculosis. Tributes were also paid by Chaplain W. K. Lloyd, U. S. Army, and Mayor Percy Wilson of Silver City; and Colonel Bushnell responded, thanking the assemblage for the honor paid to him and to the Medical Corps of the Army.

NEW YORK

Christian Science Bill Defeated.—The Thorn bill, permitting Christian Scientists to practice healing in this state, was practically killed March 3, when it was recommitted in the assembly for a hearing by a vote of 69 to 31.

Health Hints Discontinued.—Announcement is made by the director of publicity and education of the State Board of Health, that owing to the lack of funds for the educational work of the department, the publication of *Weekly Health Hints* will be discontinued after March 1.

Personal.—At the annual meeting of the Gross Medical Club, Buffalo, February 19, Dr. J. Henry Dowd, Buffalo, was elected president; Dr. W. Warren Britt, Tonawanda, vice-president, and Dr. Chester C. Cott, Buffalo, secretary.——Dr. Frank H. Lawrence, Kanona, has been taken to the Willard State Hospital for treatment.——Dr. Paul B. Brooks, Norwich, began his service as sanitary inspector of the State Department of Health for the counties of Chenango, Broome, Madison and Cortland, March 1.

Hearing on Antivivisection Bill.—A hearing was held March 2 before the joint legislative committees on the judiciary on the bills intended to prevent the practice of vivisection in this state. Those who argued against these bills were Drs. Simon Flexner, Frank VanFleet, William H. Park, Fred S. Leo and Prof. Paul B. Mann. The latter declared that these bills would not only interfere with progress in medical science, but with the study of animal life in biology and physiology, and that even the study of the migration of birds through fastening tags on their wings might be considered prohibitive under the proposed law, and that any one joining the "swat the fly" movement was in danger of arrest. Antivivisectionists and representatives of the Society for the Prevention of Abuses in Animal Experimentation were out in full force.

New York City

New Ruling on Burials.—A recent amendment to the sanitary code makes it no longer requisite that bodies of persons dying from contagious diseases be buried within twenty-four hours. The requirements that such funerals be private and conducted with conformity with the regulations previously existing continue in effect as heretofore.

City Acquires Another Hospital.—The New York Association for the Improvement of the Condition of the Poor has turned over to the city its new $250,000 Sea Beach Hospital for Tubercular Children at Rockaway. The buildings are completely equipped and prepared to care for 138 children suffering from non-pulmonary tuberculosis. When the plans for the hospital are completed there will be a capacity of 1,000 beds.

Hospital for Wall Street District.—An organization has been formed by a number of bankers, lawyers and business men for the purpose of establishing an emergency hospital in the financial district of the city. Arrangements have been completed for the leasing of four flours in an eight-story fireproof building at 100-111 Broad Street for temporary quarters for "The Broad Street Hospital." The hospital will contain at first twenty-four ward beds and it is proposed to extend the work so that general as well as emergency cases may be accommodated. Twenty-five hundred dollars will endow a ward bed and $5,000 a private room. The organization is working for an endowment of $1,000,000.

Personal.—Dr. David Bovaird, Jr., has been granted a leave of absence by Columbia University, from April 15 to November 15, to enable him to visit the various mission stations, hospitals and medical schools in which the board of foreign missions of the Presbyterian Church is interested in Siam, the Philippines, China, Corea and Japan. He will devote himself to the study of the medical problems related to this work.——Drs. Joseph S. Wheelwright, Thomas C. Walker, W. H. Braddock, Albert O. Jimenis and John C. Irwin accompanied by ten nurses from the French Hospital, sailed for France on the *La Touraine* on March 1, where they will engage in relief work.——Dr. Herman L. Reis recently obtained a verdict of $7,000 against the estate of Timothy D. Sullivan for services rendered to the deceased and his friends, and dependents whom he had sent to Dr. Reis for treatment.

NORTH DAKOTA

New Hospital.—Drs. John and Fred E. Ewing, Kenmare, will begin the construction this spring of a new hospital building at Kenmare, to cost $25,000.

Smallpox in the Legislature.—Smallpox broke out in the North Dakota Legislature in the latter part of February, one senator and the clerk of the senate ways and means committee being the victims. The patients were sent to the detention hospital. The cases were mild. No further spread of the disease is reported.

OREGON

Component Society for Lane County.—The Lane County Medical Society, at its meeting in Eugene, February 10, adopted the standard constitution and affiliated itself with the state and national organizations.

Appropriation for Hygiene Society.—The Oregon Social Hygiene Society has been allowed a legislative appropriation of $15,000 for its work, with the provision that this money shall be expended under the supervision of the State Board of Health. The society applied for an appropriation of $31,000.

Graduation Required.—At the recent session of the Oregon legislature the medical practice act was amended to provide that hereafter all applicants for the license to practice in that state must present satisfactory evidence of graduation from a medical college approved by the licensing board. This leaves only three states—Colorado, Massachusetts and Tennessee—which continue to admit non-graduates to the examinations for the license to practice medicine.

State Board in Salem.—The Joint Ways and Means Committee has voted to allow the State Board of Health an appropriation of $30,000 and to make Salem the headquarters of the board. The appropriation was within $3,678 of the amount asked by the board, and of this amount $2,238 was allotted for rent. The committee figured that this rent might be saved and that the board might be in a position to do laboratory work for all of the state institutions.

PENNSYLVANIA

Dinner to Provost.—Provost Edgar F. Smith of the University of Pennsylvania, Philadelphia, was the guest of honor of the Pittsburgh Alumni of that institution, February 26.

A Decade as State Health Commissioner.—On March 1, Dr. Samuel G. Dixon, Philadelphia, health commissioner of the state of Pennsylvania, completed ten years of service in that position.

Settlement Physicians Entertained.—The dispensary committee of the board of managers of the Public Wash House and Baths Association of Pittsburgh, entertained the seven women on the medical staff of the institutions at luncheon, March 1.

Semicentennial to be Celebrated.—Arrangements are being made by the Allegheny County Medical Society for the celebration of its semicentennial, April 20. It is proposed to devote the morning to clinics in the hospitals, the afternoon to a formal meeting of the society and the evening to a subscription banquet.

Oppose "Wide Open" Hospital Bill.—State charity experts, trustees and resident physicians opposed the passage of a bill permitting pay patients to call in any duly licensed physician or surgeon to attend them while in hospitals receiving state aid, even physicians or surgeons not connected with the institution. The bill has passed first and second reading in the house and now is in the house committee on public health and sanitation where an effort is being made to kill it.

Mellon Lecture.—An endowment lectureship has been presented to the Society of Biologic Research of the University of Pittsburgh, by Mr. Richard B. Mellon. This provides for an annual lecture on subjects of medical research, the lectures being published in the form of monographs, for distribution to libraries and research workers. The first lecture was given by Prof. John J. Abel, Baltimore, of Johns Hopkins University, February 27, on "Experimental and Chemical Studies of the Blood and Their Bearing on Medicine."

Personal.—Fire of undetermined origin burned out the offices of Dr. Thaddeus A. Starzynski, Pittsburg, February 28.——The home of Dr. Simon S. Koser, Williamsport, was destroyed by fire, February 28.——Dr. Guy R. Anderson, Barnesboro, is ill at his home.——Dr. Thomas Elliott, Sharon, is reported to be critically ill with septicemia in a hospital in that place.——Dr. Andrew S. Stayer, Altoona, who has accepted a position as surgeon of the Maine Soldiers' Home, was given a dinner, February 26.——Dr. Jerome B. Rogers, Pottsville, has been appointed chief of the surgical staff of the Pottsville Hospital, vice John H. Swaving, deceased.

Philadelphia

Personals.—Dr. S. Wilmer Tunnell was operated on for appendicitis at the Medico Chirurgical Hospital, March 3. His condition was considered serious.——Dr. Louis Lehrfeld has been appointed by Director S. Lewis Ziegler, agent of the department of diseases in the department of health.

Hospital Ward to Cure Dope Fiends.—As a community safeguard as well as an aid to the individuals, the department of health has opened a special ward at the Philadelphia General Hospital for the cure of drug fiends, who, under the new law regulating the sale of drugs, are suddenly deprived of their drugs.

Action Asked on Sewage Disposal.—In his annual report, Chief Engineer Webster of the Bureau of Surveys, urges on councils the necessity of giving their attention to the subject of sewage disposal. The small sewage disposal plant maintained by the city at Pennypack Creek has rendered excellent results to the bureau which has prepared a comprehensive plan of the sewage disposal for the entire city.

Cattle Disease Again Found.—The foot and mouth disease has broken out again in Frankford and other outlying districts to the north of Philadelphia. The State Sanitary Live Stock Board has issued a quarantine order for the districts north of Girard Avenue between the Delaware and Schuylkill rivers. The quarantine not only affects cattle but the transportation of fodder, hay, straw, skins and hides.

Polyglot Bulletins.—The Federated Medical Council has prepared twenty timely health talks to be printed in many languages and pasted on 300 bulletin boards erected by the child federation in courts and alleys of the most congested housing districts of Philadelphia. The Council is made up as follows: chairman, Dr. Samuel McClintock Hamill; secretary, Dr. William N. Bradley, and Drs. Howard Childs Carpenter, Charles A. E. Codman, Charles A. Fife, C. Lincoln Furbush, J. Claxton Gittings, Howard Kennedy Hill, Henry D. Jump, William Duffield Robinson and John F. Sinclair.

Maternity Opened.—The new maternity building of the Germantown Dispensary and Hospital, erected at a cost of about $35,000, was opened to receive patients, March 1. The building has been erected by Edward J. Moore as a memorial to his mother, Mrs. Marion Hardy Moore, and in the hall of the building a tablet has been installed bearing a suitable inscription. The building is of brick with terracotta trimmings, 38 by 140 feet, and is divided into two portions, one for free or semi-free patients, and the other for pay patients. In the first portion of the building there is one large ward, two small wards, operating, sterilizing and linen rooms, etc., and the pay wing is devoted entirely to private rooms.

Medical Institutions About Philadelphia.—A brick addition, one story high, 29 by 38 feet, to the Methodist Hospital is provided for in a contract just awarded.——A bureau of social research, with the general purpose of minimizing waste effort and coordinating the work of the city's social service agencies, has been established under the auspices of the Seybert Institution. The functions of the bureau are: To collect, classify and interpret facts underlying social conditions and social service in the city of Philadelphia; to aid in standardizing methods and forms for record keeping and interpretation, so as to render the facts gathered by welfare agencies available for measuring and interpreting social conditions aside from their utility in dealing with the individual cases; to assist in the study of the adequacy and efficiency of social service in the community; to make surveys of specific social problems and assist in the formulation of constructive policies and, when necessity demands; to draught legislation for the handling of such problems; to promote social research among other welfare agencies.——The contract just awarded for a hospital building, for Maternity Hospital of the University of Pennsylvania, calls for three stories and basement, brick, stone and concrete and steel.

VERMONT

Deaths from Liquor Containing Wood Alcohol.—Twelve persons died at Bristol, November 2, as a result of drinking liquor containing wood alcohol purchased at a local drug store and consumed October 31.

Infantile Paralysis Clinic.—A free clinic was established at the Rutland Hospital, February 13, for persons who have suffered from infantile paralysis. The clinic was held under the direction of the Vermont State Board of Health by Dr. Robert W. Lovett of Harvard Medical School. The clinic was attended by about twenty-five out-of-town physicians and the members of the State Board of Health.

WEST VIRGINIA

Druggists Entertain Physicians.—The druggists of Martin's Ferry gave a dinner in honor of the physicians of the city, February 16.

Smallpox and Vaccination at Charleston.—An epidemic of smallpox that broke out in the jail at Charleston during the latter part of February, is believed to be the source of the numerous cases throughout the city. During one week 400 persons, including Governor Hatfield, himself a physician, and every member of the legislature and all state house employees were vaccinated. Strict quarantine is being enforced in all cases.

WISCONSIN

Gross Prize Awarded.—The Samuel D. Gross Prize of the Philadelphia Academy of Medicine for the year 1915 has been awarded to Dr. John Lawrence Yates, Milwaukee, for his essay entitled "Surgery in the Treatment of Hodgkin's Disease." The amount of this prize is $1,500.

Personal.—Dr. George H. Fellman, Milwaukee, has been appointed physician to the County Home for Dependent Children, Wauwatosa, to succeed Dr. George J. Jurss, Milwaukee. At a meeting of the board of trustees of the home, February 27, the appointment failed of ratification.——Dr. Jacob M. Furstman, LaCrosse, has been appointed a member of the State Board of Health, to succeed Dr. Charles H. Stoddard, Milwaukee.——While returning from a late call in the town of Chase, Dr. Robert J. Goggins, Oconto Falls, was pursued by wolves, February 22. They abandoned the chase when the lighted streets of the village were reached.——Dr. Norman F. Hoffman, Milwaukee, was appointed superintendent of the State Tuberculosis Sanatorium, Wales, to succeed Dr. John W. Coon, Wales, resigned, and has taken up his new duties.——Drs. Frederick J. Gaenslen and Arthur J. Patek, both of Milwaukee, have been reelected chiefs of the surgical and medical staff, respectively, of the Milwaukee Children's Free Hospital.

WYOMING

Personal.—Dr. George A. Harris, Basin, after taking a course at the Army Medical School, Leavenworth, for six weeks, will sail for Europe, where he expects to take service under the Red Cross.

State Board Reappointments.—The governor has reappointed for a term of four years Dr. Herbert T. Harris, Basin, president of the State Board of Health; Dr. William A. Wyman, Cheyenne, secretary and executive officer; and Dr. Anna G. Hurd, Sheridan, as member.

GENERAL

Leper Home Bill Passed.—The House of Representatives, February 24, passed a bill to authorize the establishment of a home for lepers under the U. S. Public Health Service, and the bill is now before the Senate for consideration.

Posture League Luncheon.—The second annual luncheon of the American Posture League was held at the Hotel Astor, New York City, March 13. Invitations were extended to the general membership of the league and to others interested in the movement of the central committee on public health organization. The after-luncheon program set forth the educational, scientific and welfare aspects of the work of the organization. The president and founder of the league, Miss Jessie H. Bancroft, presided, and spoke on the "History, Plan and Work of the American Posture League."

Pathologists and Bacteriologists to Meet.—The American Association of Pathologists and Bacteriologists, of which Dr. Leo Loeb, St. Louis, is president, will meet in St. Louis, April 2 and 3. The meetings will be held in the Pathological Department of Washington University Medical School and in the library of the St. Louis University. The annual dinner will be held at the University Club, April 2. Preceding these meetings on April 1 will be held the annual meeting of the American Association for Cancer Research and the annual meeting of the International Associaiton of Medical Museums. These meetings will be held in the laboratories of the Washington University Medical School.

Bequests and Donations.—The following bequests and donations have recently been announced:

Chester, Pa., Hospital, $5,000 and the residue of the estate of Marietta Flower.

Children's Aid Society, Philadelphia, $1,000 by the will of Mrs. Harriet Morgan Frazier.

United Charities, Chicago, $22,400.81, the proceeds of a minstrel show given by the employees of the Chicago Telephone Company, Commonwealth-Edison Company and the Peoples Gas Light and Coke Company.

Hospital for Deformities and Joint Diseases, New York City, $700,000 by the will of Mrs. Cutter. This will is being contested.

The town of Dedham, Mass., to be used for the Elizabeth S. Capen Hospital fund from $50,000 to $100,000 by the will of Calvin W. Capen.

Celebrate Report Completion.—The joint committee in charge of the medico-actuarial mortality investigation, consisting of four medical directors of life-insurance companies and four actuaries, were given a dinner, February 26, by the Association of Life Insurance Medical Directors of America, at which about forty medical directors were present. The dinner was given in celebration of the completion of the medico-actuarial report, which has involved many months' labor and is contained in five volumes. Dr. William Evelyn Porter, New York City, president of the association, acted as toastmaster, and presented to each member of the committee a specially bound and suitably inscribed copy of the report.

For Medical Education in China.—The Rockefeller Foundation announced, March 7, that it would undertake the improvement of medical and hospital conditions in China. To this end the foundation has established a special organization to be known as the China Medical Board of the Rockefeller Foundation, the first object to which is the development of medical education. This is to include aid for the two medical schools in China, which are now inadequately equipped, the strengthening of the staffs of mission and other hospitals, assistance in the establishment of two modern tuberculosis hospitals, the establishment of six $1,000 scholarships to enable Chinese graduates in medicine to pursue studies abroad, and five scholarships for nurses for the same purpose. The idea is to build up a body of Chinese medical men who will take the lead in teaching the medical sciences. This action follows an exhaustive investigation of conditions by a special commission sent to China in 1914. The members of the medical board are Harry Pratt Judson, Dr. Francis Peabody, Roger S. Greene, Frank J. Goodnow, Simon Flexner and Wallace Buttrick, with John D. Rockefeller, Jr., chairman, and Roger S. Greene, resident director, with headquarters at Peking.

FOREIGN

American Scientific Society Honors W. Roux.—The professor of anatomy at the University of Halle, W. Roux, who originated the conception of growth and development as the result of mechanical causes, has been elected honorary member of the American Society of Naturalists. He founded in 1894 the *Archiv für Entwicklungsmechanik*, and is now in his sixty-fifth year.

Koch's Birthday Celebrated in Japan.—Japanese physicians have always celebrated the birthday anniversary of Robert Koch with a special meeting, since his death, and our German exchanges mention that this year was no exception to the rule. Fully 300 members of the profession gathered at Tokyo to do honor to the German scientist on his anniversary, December 11.

Deaths in the Profession Abroad.—Among the better known names on the published lists of German casualties are those of T. Groedel, Jr., of Bad Nauheim, who has been making a special study of roentgenography of the heart. Ahrens of Hamburg is also on the list.——Diphtheria contracted while doing volunteer hospital service is responsible for the recent death of R. Neuhauss of Berlin, aged 60. He published a manual of microphotography and also founded the *Photographische Rundschau* in 1894.——The death of David Matto, professor of bacteriology at the University of Lima, aged 56, is reported from Peru. He was long editor in chief of the *Cronica Medica*, published there, and has served in the senate and as a member of the cabinet. He visited this country as the official delegate from Peru to the International Tuberculosis Congress, and has usually represented Peru in the various Pan-American congresses.

WAR NOTES

Epidemic Diseases.—The number of cases of cholera is lower than in the fall, but still Austria reports in a recent week 24 cases, with 3 deaths; Hungary 165 cases, with 45 deaths, and Croatia 114, with 55 deaths. Only a very few cases have been found in Germany. During the same week Austria had 242 cases of exanthematous typhus, and Germany 16 cases in physicians or attendants at the Russian prisoners' camps; the number of cases of typhus in these five large camps has not been made public.

Part of the Toll Paid by the Profession to the War.—Our German exchanges state that, to January 15, 216 physicians are said to have been wounded; 56 have fallen; 23 have died from disease; 11 from wounds or accidents; 40 are known to be in the enemy's hands and 94 are missing. This is a total of 450 out of 12,000. As already mentioned elsewhere, the French, to January 20, have listed 260 wounded, 440 missing, 507 incapacitated by sickness and 90 killed, a total of 1,300 out of 6,500 medical officers with the army.

The War and Münster University.—The University of Münster, in northwestern Germany, announced in its report, January 15, that of its 2,135 male matriculated students, 1,069 are with the colors, and 33 have won the iron cross and 2 others still other decorations. One member of the faculty and 45 of the students have fallen on the field of battle. Thirty-two docents and 24 other members of the faculty are serving in the Red Cross or in the trenches, and 9 have won the iron cross.——The University of Kiel also reports that 1,284 of its 1,778 students are at the front, including 506 of its 675 medical students.

Morbidity and Mortality in the British Service.—From Aug. 1, 1914, up to Feb. 11, 1915, there have been no cases of typhus fever among the Expeditionary Forces or the British Forces in the United Kingdom. There have been 625 cases of typhoid fever, with 49 deaths, among the Expeditionary Forces and 262 cases, with 47 deaths, among the troops in the United Kingdom. No cases of cholera have been reported. Among the troops in the United Kingdom one case of smallpox has occurred. There have been 196 cases of scarlet fever, with 4 deaths, in the Expeditionary Forces, and 1,379 cases, with 22 deaths, among the troops in the United Kingdom. Diphtheria caused 6 deaths out of 783 cases among the troops in the United Kingdom. There were 175 cases of measles, with 2 deaths, among the Expeditionary Forces, and 1,045 cases, with 65 deaths, among the troops in the United Kingdom. There were 215 cases of dysentery, with 1 death; 1,508 cases of pneumonia, with 351 deaths, and 62 cases of cerebrospinal meningitis, with 26 deaths, among the troops in the United Kingdom. The returns for smallpox, diphtheria, dysentery, pneumonia and cerebrospinal meningitis in the Expeditionary Forces were not available at the time this report was made. Included under typhoid fever were 25 cases, with 4 deaths, among the Indian troops, and under measles 5 cases, with no mortality.

Aid for Belgian Physicians.—The Committee of American Physicians for the Aid of the Belgian Profession is working in cooperation with the American Commission for Relief in Belgium. The commission is well organized and through the medium of American, Spanish and other diplomats it alone is permitted to send the necessities of civilian life into all parts of Belgium. The accounts of the commission are audited weekly by a well-known company of international repute. The commission has representatives in Rotterdam, Brussels and many other points in Belgium. Until recently, Brussels was the only city through which imports could be distributed to various points in Belgium. Within the last few weeks, however, such privileges have been granted for Liege and other Belgian cities. Positive assurances have been given by foreign and military departments of the warring countries that the flag of the American commission will be respected under all circumstances. Through the instrumentality of the commission, diplomatic arrangements have been perfected whereby not only food and clothing but drugs, instruments and other supplies may be sent for civilian use, only, in Belgium. It is through this commission, as has been said, that the committee of American physicians arranges for the distribution of its supplies among civilian physicians and their families in Belgium.

An arrangement has been entered into by the committee with the commission that the boxes sent shall have uniform contents and that they shall respect all the laws of neutrality by putting on the boxes no mark except the yellow band painted around the box. This is the quarantine color and indicates that the box is for physicians. The first work of the committee was to learn something of the cost of supplies and to get into communication by cable with physicians in Holland and Belgium regarding the most urgent need in the way of drugs and professional supplies. Up to the present time the committee of American physicians have found the need so urgent that it has been sending food alone. A wholesale grocery house in New York has agreed to produce standard boxes of food at the lowest possible cost and to pack them in a uniform manner in full compliance with the laws of neutrality. They provide two standard boxes, one for infants and one for adults. The contents of these boxes were suggested by Dr. Harvey Wiley and contain a maximum of food at a minimum of cost. Each box for an adult contains the following articles of food:

3—3 lb. Tins Baked Beans
3—1 lb. Tins Pink Alaska Salmon
1—5 lb. Cotton Sack Rolled Oats
1—5 lb. Cotton Sack Yellow Corn Meal
1—5 lb. Cotton Sack Yellow Split Peas
1—2 lb. Cotton Sack Granulated Sugar
1—3 lb. Cotton Sack 70/80 Cal. Prunes
1—7 lb. Cotton Sack Wheat Flour
1—1 lb. Cotton Sack Salt.
1 Can Opener.

The first 1,625 boxes were purchased at a cost of $2.20 per box. On February 26, owing to an increase in the cost of materials, the price of each box was advanced until further notice to $2.30. At this latter price 352 additional boxes have been forwarded.

In his weekly report the treasurer calls attention to the fact that the recent notes issued by the belligerent countries have caused serious concern for the welfare of Belgium. The restrictions rendered necessary by the recent drastic war measures have greatly increased the difficulties of transferring supplies to Rotterdam and thence to Belgium. The English government has withdrawn its monthly contribution of $7,000,000 for the relief of Belgian civilians. The need for extra effort on the part of Americans is, therefore, more urgent. The ships of the American Commission for Relief in Belgium are the only ships whose safety the belligerent governments guarantee. This commission is undertaking to deliver the supplies furnished by the Committee of American Physicians for the Aid of the Belgian Profession.

WEEKLY REPORT

The report of the treasurer for the week ending March 6, 1915, lists the following contributions:

Dr. Grace Wolcott, Boston, Mass.	$ 10.00
Dr. Harold E. Perry, New Bedford, Mass.	10.00
Pittsburgh College of Physicians, Pittsburgh, Pa.	45.00
Dr. Daniel R. Robert, Brooklyn, N. Y.	5.00
Mrs. Charles E. Paddock, Chicago, Ill.	5.00
Dr. Chas. S. Wright, Act. Asst. Surg., U. S. A., Portland, Me.	5.00
Dr. E. C. S. Taliaferro, Norfolk, Va.	30.00
Dr. William H. Wilder, Chicago, Ill.	25.00
The Thunder Bay Medical Soc., Ontario, Canada	25.00
Garland Co.-Hot Springs Medical Society, Hot Springs, Ark.	25.00
Dr. J. Shelton Horsley, Richmond, Va.	5.00
Dr. E. F. Dodds, Missoula, Mont.	5.00
Dr. George R. Little, Wichita, Kansas	25.00
Dr. James A. Jackson, Madison, Wis.	5.00

Receipts for week ending March 6		$ 225.00
Previously reported receipts		4,386.50
Total receipts		$4,611.50
Previously reported disbursements—		
1,625 standard boxes of food at $2.20	$3,575.00	
352 standard boxes of food at $2.30	809.60	
	$4,384.60	
Disbursements week ending March 6 (100 boxes of food at $2.30 per box)	230.00	
Total disbursements		$4,614.60
Deficit		$ 3.10

F. F. SIMPSON, Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

LONDON LETTER

LONDON, Feb. 19, 1915.

The War

THE MEDICAL SERVICE

In his last dispatch, Sir John French, the commander in chief of the British army in France, commends the untiring zeal, skill and devotion of the army medical corps since the commencement of hostilities. He states that whether at the front under conditions such as obtained during the fighting on the Aisne, when casualties were heavy and accommodation for the reception of the wounded had to be improvised, or on the line of communications, where an average of 11,000 patients have been daily under treatment, the organization of the medical services has always been equal to the demands made on it. The careful system of sanitation introduced into the army has, with the assistance of other measures, kept the troops free from any epidemic, in support of which it is to be noticed that since the commencement of the war only about 500 cases of typhoid fever have occurred. For the first time in war, motor ambulance convoys have been organized; twelve hospital trains ply between the front and various places.

CONSPICUOUS BRAVERY OF AN ARMY SURGEON

Lieut. A. M. Leake of the army medical corps was awarded for conspicuous bravery in the Boer War in 1902 the highest decoration, the Victoria Cross. He went up to a wounded man and attended him under heavy fire from forty Boers at a distance of 100 yards. He then went to the assistance of a wounded officer and was shot three times, but would not give up till he rolled over exhausted. He has distinguished himself again in the present war by rescuing while exposed to constant fire a large number of wounded lying close to the enemy's trenches. As no higher decoration could be awarded to him than his previous one, he has been granted a clasp to wear with the cross already gained, a distinction without precedent.

BLINDED IN WAR

One of the saddest of all the tragedies of war is the loss of the sight of both eyes. So far twenty-two cases have occurred in the British forces. Probably the greater dispersiveness of modern missiles renders this accident more common than in previous wars. Provision has been made to send all soldiers blinded at the front to the second London General Hospital where they can receive the highest skilled attention. Arrangements have also been made for the aftercare of such cases. Mr. C. Arthur Pearson, the newspaper proprietor, and president of the National Institute for the Blind, is the chairman of the "Blinded Soldiers' and Sailors' Care Committee" formed for this purpose. A philanthropist, Mr. Otto Kahn, has placed at the disposal of the committee, for the purposes of a hostel, a large house with fourteen acres of gardens and grounds. In the grounds will be installed an open-air club, where those of the blind men who wish to live in the country will be taught poultry culture, garden and farm work, way finding, marketing, and sports and games. A fund has also been started for providing typewriters, writing frames and specially devised games.

RETURN OF BRITISH WOUNDED PRISONERS FROM GERMANY

The first 110 prisoners of war exchanged with the Germans because invalid for future service have arrived in Holland. Some have lost a leg, others an arm, some are blind, one who was wounded in the head has become a deaf mute.

CAREERS FOR WOMEN

The removal of a large number of men from civilian life has had a great effect in opening careers for women in the medical and other professions. Medical posts are now thrown open which before the war were reserved for men, and some of these are going begging because the demand for women doctors is greater than the supply. Women teachers are replacing men in the schools. Since the war there has been an increase of 25 per cent. in the employment of women in London banks. One curious employment is in the letter censors' office for which women are particularly suited by their knowledge of languages. There is also a greater demand for women pharmacists and dentists. The London School of Medicine for Women is being considerably enlarged. Building operations are already being begun. The anatomy department is to be doubled, and the physiologic department to be extended and provided with a new demonstrating theater, library and research rooms. Though the need of this extension is not the result of the war, this has made it more pressing. While the number of male medical students has shown a steady decline during the past six years, the number of female students has increased, especially in the last two years. The number of women on the medical register has increased from two forty years ago to about 1,000 at the present time. Of these, 600 were educated at the London school. During the past six years the annual entry has doubled, and there are now 220 students in attendance; but the number desiring to enter is greatly in excess of this, and it is proposed to increase the accommodation to 375. Speaking at a meeting to raise funds for the purpose, Sir Alfred Keogh, director general of the army medical corps, paid a tribute to the work of women physicians in the war. He had received unsolicited letters from Paris and Boulogne stating that the work of women physicians was beyond praise. So impressed was he that he had asked two of the staff to come to London and do bigger work. He asked them to take charge of a hospital of 500 beds and, if they pleased, of a hospital of 1,000 beds.

THE CONTROL OF TYPHOID FEVER AT HOME

The War Office, after consultation with the Local Government Board (the authority which controls sanitary administration), has decided that a special record is to be kept by military sanitary officers concerning each case of typhoid fever occurring among soldiers in this country. The objects in view are (1) to ensure that each case is made the subject of inquiry; (2) to provide material for further inquiry when multiple cases occur; (3) to compare the experience of various military units, and (4) to enable a summary to be prepared of the experience of the army as a whole and in different parts of it. Military medical officers are required to inform the health officer of the sanitary district in which troops are stationed of any cases of typhoid fever which may occur. The health officer is to cooperate with these officers and with military sanitary officers in tracing the source of infection and removing any conditions favoring spread of the disease. The health officer will be in a position to give information as to the relation of each case to causes of infection present in his district, or, if the infection has been contracted elsewhere, to communicate on the subject with the health officer of the district concerned.

BERLIN LETTER

Berlin, Feb. 9, 1915.

Personal

DEATH OF PROFESSOR OLSHAUSEN

Professor Olshausen of Berlin died February 1 at the age of 79. He was one of the founders of modern gynecology who had done pioneer work especially in the field of operative gynecology. His career began as assistant of the noted professor of gynecology, Edward Martin, the father of Professor August Martin, now living in Berlin as professor emeritus, and who was then working at the Berlin gynecologic clinic. From Berlin Olshausen went as assistant to the gynecologic clinic at Halle which was under the direction of Hohl. There he became a member of the faculty in 1862 and in the same year became professor extraordinary and in 1864 was appointed successor of Hohl. In Halle he remained until 1887, in spite of the fact that he was frequently called to larger universities. Then he accepted the call to Berlin as successor of Professor Schröder whose early death had left vacant the position of director of the university gynecologic clinic. In this position he remained until 1910, when he resigned his position on account of his advanced age. The number of his works is extraordinarily large. We will mention only those on total hysterectomy, the ventral operation for prolapse and retroversion, on the supplemental diagnosis of the course of birth by examination of the child's skull, and many others. In book form he published "Diseases of the Ovaries," "Mechanism of Labor" and "Practical Contributions to Gynecology." His contributions to the larger compilations are very numerous. With Professor Veit he elaborated Schröder's "Text-Book of Obstetrics." Since 1887 he has been the editor of the *Zeitschrift für Gynäkologie und Geburtshilfe.*

DEATH OF PROF. E. VON ESMARCH

February 5 the former director of the hygienic institute at Göttingen, Prof. E. von Esmarch, died at the age of 59. He was the son of the well-known surgeon, Friedrich von Esmarch, by his first marriage (Esmarch married for his second wife, an aunt of our empress). Esmarch began his scientific career as assistant to Professor Schweigger at the Berlin University eye clinic. Then he turned his attention to hygiene and became an assistant of Robert Koch. Later he was appointed custodian of the Museum of Hygiene. In 1890 he became a member of the faculty and when Robert Koch gave up his position as university teacher he assumed the direction of the hygienic institute and the delivery of lectures on hygiene. In 1901 he was called to Königsberg as professor extraordinary, and in 1897 he became regular professor. In 1899 he moved to Göttingen. Illness compelled him some years ago to resign his position. His articles are chiefly on the subject of disinfection, in which he achieved some practically valuable results. His investigations on the filtration of water and bacteriologic researches on diphtheria and cholera, and his investigation on the hygiene of churchyards, should be mentioned. A pocket manual on hygiene, published by him, has passed through several editions.

DEATH OF PROF. JULIUS ARNOLD

The noted Heidelberg professor of pathologic anatomy, Julius Arnold, died February 6, at the age of nearly 80. He was introduced into science by his father, Friedrich Arnold, the Heidelberg anatomist and physiologist. After a journey for study, he became the assistant of his father and privatdocent at Heidelberg. Then he devoted himself to normal histology and the history of evolution. Later he became pathologic anatomist. A special professorship for pathologic anatomy was established by his efforts at Heidelberg, and in 1860 he became professor extraordinary and in 1870 regular professor. In 1907 he retired. His scientific work treated mostly on the eye but also on the blood vessels and the blood-forming organs. He gave a great deal of attention to the histology of tumors. In the field of hygiene he made experimental investigations on the inhalation of dust.

New Institute

The senate of the Kaiser Wilhelm Society for the Advancement of Science at a session held on January 23, determined to break ground for the projected Kaiser Wilhelm Institute for Physiology and for the Study of the Brain. The Kaiser Wilhelm Institute for Biology is soon to be opened at Dahlem.

The War

THE FOOD SUPPLY

Additional special regulations have been promulgated for the use of flour and bread.

Under a provisional ordinance, the commission has determined on an average of 225 grams of flour per day for each person. As was to be expected, the population have adapted themselves to these new regulations without any opposition. Naturally, complaints arise here and there with reference to the deficient palatability of the new breadstuffs. For this reason, at the last meeting of the Berlin Medical Society, Professor Albu proposed special regulations for the sick. By all the other speakers it was emphasized that hitherto no injury of patients by the new bread had been observed objectively, and that for this reason there was no occasion for any such regulations. Further trials were needed to determine first whether exceptions should be made in favor of patients. In other respects everything is being done to make the cultivation and harvest of grains for this year as abundant as possible. Moreover, we will not be left in the lurch by the neutrals in the supply of grain. We have been supplied by Roumania with a considerable quantity of wheat, naturally at an increased price, but we can pay it, and not only are sufficient means at hand for this purpose but also for the support of the army with all possible presents, including delicacies.

THE CRIPPLES MADE BY THE WAR

Already the treatment of the wounded and of the invalids from the war has been organized on a large scale. On the eighth, there occurred, in the presence of the empress, an extraordinary meeting of the German Association for Care of Cripples, which is under her protection. It was attended by the representatives of many state and community officials, private organizations and prominent orthopedists and nerve specialists. The first address was made by Professor Biesalski on the means for assistance and the outlook for the care of the war cripples. He showed the satisfactory results which are secured by prophylactic orthopedics by the example of a number of wounded and of children from the home for cripples conducted by him at Zehlendorf near Berlin. He stated as a principle that there need not be any cripples if the wounded are cared for in the right way and at the right time.

Professor Schwiening described the provisions made by the army management for the cripples of the war. As early as the tenth day of the mobilization there were 100,000 beds available, and the number has doubled since that time. The military authorities, however, not only seek to heal but also aim to apply measures to avoid the unfavorable results of wounds; arrangements for this had been already provided in time of peace. In part, special sections for orthopedic work were established or contracts were concluded with private institutions. A large number of orthopedists have been secured as consultants for numerous hospitals. For instance, in connection with the Garde-Korps, twenty-four medical-mechanical institutions are at the service of the military authorities. Also, arrangements have been completed with 107 health resorts for the after-treatment of the wounded and the sick. Artificial limbs and apparatus are procured and renewed by the military authorities. Special institutions have been established for the one-armed and the blind, and others will follow. Advisers with reference to trades are attached to the hospitals for those who can no longer follow their previous trades or think they cannot. Finally he spoke of the special pensions, as the field allowance and the increase of pay for mutilation will remain as permanent compensation for those crippled in the war.

Kirchner, the ministerial director, spoke of the provisions made by the national government for our returned soldiers. In this address he started with the fact that from the investigation of Krauss on 100 accidental injuries, after six years 25 per cent. were to be regarded as socially declassed; 38 per cent. had completely adapted themselves economically and 3 per cent. had raised themselves in the economic scale. Conditions must be made better than this in the case of our wounded in the war, in order to conserve every force capable of activity to compensate for the great loss of men. It is a matter for the state, especially to supplement the social philanthropy of the military authorities. In this work is included advice as to occupation, training for a trade by a master or in a trade school or in cripple homes, and care to make use of the acquired ability to work by the state employing the crippled workers in its own establishments and so giving the example to other employers of labor and workmen. As agents of this social philanthropy there are available in addition to the German Association for the Care of Cripples and the Red Cross, especially the institutions of social insurance and the great labor unions, and the employment bureaus. All must work together in unison if the work is to be crowned with success. This can be accomplished only if the state takes the organization in hand as has already occurred in the provinces of Brandenburg and Westphalia.

PARIS LETTER

PARIS, Feb. 18, 1915.

The War

NATIONAL SCHOOL FOR MUTILATED SOLDIERS

At the suggestion of the minister of the interior, it has been decided to found a national school for soldiers who have been mutilated by wounds of war. The institution will be housed in the buildings of the sanatorium of Saint Maurice in the department of the Seine. These buildings are capable of taking in six or seven hundred pensioners. Mutilated soldiers, after undergoing medical and surgical treatment, will be sent to this school, where they will first be provided with the necessary apparatus and then given an industrial education. There are near the Saint Maurice sanatorium some great workshops which will be perfectly adapted to this technical instruction. This national school which will be administered under the minister of the interior by the assistance publique with the aid of the minister of war, will not interfere with the exercise of private initiative which is already engaged on the problem (THE JOURNAL, Dec. 19, 1914, p. 2241). A national institution, on the other hand, will serve to stimulate and to regulate all the private charities now operating or hereafter founded.

RÔLE AND SURGICAL IMPORTANCE OF THE SANITARY TRAINS

At one of the last sessions of the Société de chirurgie, Dr. Heitz-Boyer, surgeon of the hospitals of Paris, who during the course of a recent mission, had the opportunity of studying the operation of the sanitary trains, read an interesting paper on the subject. The evacuating trains should remove as many as possible of the wounded as quickly as possible from the front and, generally speaking, from the war zone in order to bring them, as quickly as possible, and under the best conditions of transportation, to the hospital where they can recuperate. To fulfil these conditions the sanitary trains should: (1) be completely interchangeable or as nearly so as possible; (2) carry the wounded both seated and in beds; (3) permit wounded men to be brought in and placed in the interior of the compartments without removal from the litters. In addition to these three primary technical necessities, there are various others with regard to lighting, heating, etc.

In times of peace, three types of trains were planned: (1) permanent trains, practically hospitals on wheels, composed of cars specially constructed and furnished for the transportation of sick or wounded patients in a serious condition; (2) improvised trains composed of freight cars fitted up temporarily to meet emergencies; (3) ordinary passenger coaches for the sick and wounded who are able to travel seated. Experience has shown that improvised trains are so lacking in comfort as to be unsuitable for the transportation of seriously wounded men. After three months, therefore, the military health service has created a new type of sanitary train called "semipermanent," which constitutes an important improvement. It is composed of passenger coaches some of which have been arranged to receive directly the litters of the wounded who need to be thus transported. These trains are mixed and carry 100 on litters and 300 seated. At present sixty trains of this type are in use and soon twenty others will be in circulation. They are warmed by steam, well provided with springs, well lighted during the day by windows and at night by gas. The only desirable condition lacking, so far as the coaches for the reception of the men on litters are concerned, is complete interchangeability. Partial interchangeability, however, has been sufficient to supply the conditions indispensable for medical supervision.

Association News

THE SAN FRANCISCO SESSION

Suggestions for Making the Return Trip Eastward Over a Northern Route

Inquiries concerning routings to and from San Francisco for the annual session of the American Medical Association prove the interest taken in the announcement of the specials which are being planned for the going trip (Association News, The Journal, January 30, p. 457, February 6, p. 527, and February 13, p. 604). Except when it is necessary to make the trip as quickly as possible, most of those who go to San Francisco for the session will use different routes going and coming. Where the more direct routes are used for both directions, the descriptions already given will serve to give a general idea of scenic attractions of the routes which have been described. While the northern routes are available for going, it is probable that they will be used more generally for the return trip, as in most instances this will be the part of the journey that is made in a leisurely manner. Consequently, the lines described are followed from the west toward the east. In purchasing tickets to San Francisco, it is necessary to determine the route for the entire trip before the round trip ticket is bought. If "direct routes" in both directions are selected, the rates which have been quoted prevail (The Journal, January 30, p. 458, and February 27, p. 758). But where one way is by a northern route, that is, via Portland, Tacoma, Seattle, Victoria and Vancouver, the cost of the railroad ticket is $17.50 higher. For detailed information about possible routes and cost of transportation, including railroad fare and Pullman accommodations, local ticket agents should be consulted.

To return from San Francisco by one of the northern routes, the start from San Francisco should be made in the evening over the Shasta Route, which will bring the traveler the next morning to a point where this wonderful mountain will be in view and throughout the day its snow-capped peak will be the one fixed object in the ever changing landscape. During the night, the train has traversed the Sacramento Valley. It passes Lassen Peak and through the Sacramento canyon and then skirts Mount Shasta in the Klamath Mountains of northern California. In season, arrangements may be made for an excursion by automobile to Crater Lake National Park in southern Oregon from a point on the Southern Pacific, Klamath Falls Branch to Medford. Main line railroad tickets are accepted on the branch without extra charge, and the auto fare for this trip is $18. Nearing the California boundary, the railroad passes through the fertile Rogue River Valley and then in western Oregon through the Willamette Valley to Portland, on the second morning after leaving San Francisco. Several hours or a day may be spent in Portland. From Portland to Tacoma is a journey of about five hours, across the Columbia River and past Mount St. Helens and Mount Rainier — or Seattle may be the objective point, which adds about one and one-half hours to the journey. Between Tacoma and Seattle there is an excellent train service and also a well-equipped fast electric line. For this section of the journey, all or part of it, may be substituted the boat trip from San Francisco to Portland, or Tacoma or Seattle, or any of these divisions of the trip may be made by boat, as preferred.

THE CANADIAN PACIFIC

If the return trip is to be made via the Canadian Pacific, from Seattle, the route may be by boat to Vancouver through Puget Sound, and through the picturesque gateway which leads into the port of Vancouver, or by a direct train connection. The Puget Sound trip will occupy a day, and the start should be made from Seattle early in the morning, the boat leaving about 8:30, reaching Victoria about 1 and leaving there about 1:45, arriving in Vancouver in the evening shortly after 6. Vancouver is far enough north so that after the arrival of the boat there will still be several hours of daylight in which to see something of this city. Possibly one of the most unique of its attractions, at least to those who come from the east, is Stanley Park, a magnificent natural forest of "big trees."

In traveling over the Canadian Pacific, the ride through the Canadian Rockies should be taken by day. This can readily be done, as at convenient points excellent hotels are at the service of the traveler and comfortable Pullman accommodations can be provided for these daylight journeys.

Leaving Vancouver early in the morning, about 8:30, after passing through the canyons of the Fraser and Thompson rivers, within view of Mount Baker, Sicamous is reached in the late evening. If, for any reason, the trip through Puget Sound and the stop at Vancouver is not chosen, a direct rail connection from Seattle is possible, using a direct line of about 135 miles from Seattle to Mission Junction where the main line of the Canadian Pacific is reached and followed to Sicamous. At this point is a well-equipped hotel where the night should be passed. Leaving about 9 the following morning, the road follows the Illicillewaet River to Glacier, near the summit of the Selkirks. The train should arrive there about 2 in the afternoon, and a twenty-four hour stop will well repay the traveler. Leaving the following day on the same schedule, a stop should be made at Field, about five hours' distant through the mountain ranges. Here, another twenty-four hours can well be devoted to visiting points of interest, or if time does not permit this layover and Field is not visited, a further run of approximately three hours reaches Laggan, where the night and the following day, at least, should be spent. About an hour and a quarter east of Laggan is Banff. This short run may be made by leaving Laggan either about 10:30 in the morning, or about 9 in the evening. The morning train permits spending the afternoon at Banff and leaving by late bedtime. However, twenty-four hours is a short stay at either Banff or Laggan. Trains for the east leave Banff, as has been indicated, about noon and in the late evening, and pass out of the foothills of the Rockies after a short run, going through the fertile farm regions of Alberta and Saskatchewan. At Moose Jaw, a branch going in a southeasterly direction through the rich wheat belts of North Dakota and Minnesota reaches St. Paul. This brief outline of this route aims simply to suggest the points at which stops are usually made and to indicate the shortest time in which the main points of interest can be visited. If the Canadian Rockies are to be toured in a thorough manner, the stop at each point may be extended as the time at the disposal of the traveler permits. The hotels which have been named are all well conducted at rates which are reasonable. The American plan prevails and the average rate is about $5 per day per person, varying slightly within reasonable limits in accordance with the location of the room, etc.

Other northern routes will be mentioned in a succeeding issue.

Marriages

Frank Riegel Wentz, M.D., Allentown, Pa., to Miss Kathryn M. Shoemaker of Chestnut Hill, Philadelphia, February 20.

Ralph Spencer Cone, M.D., to Miss Florence M. Sutton, both of Westwood, N. J., at Hackensack, N. J., February 11.

John William L. Brennan, M.D., St. Louis, to Miss Nellie Lowe of Dubuque, Ia., at Decatur, Ill., February 16.

Robert P. C. Wilson, M.D., Marshall, Mo., to Miss Helen Taylor Arehart of Washington, Ohio, February 17.

John T. Wingate, M.D., of Platte, S. Dak., to Miss Bertha Crane of Geddes, S. Dak., February 13.

Clyde Lottridge Cummer, M.D., to Miss Marienne Dix North, both of Cleveland, February 25.

Giles R. Pease, M.D., to Mrs. M. B. Goyer, both of Redwood Falls, Minn., February 17.

Alonzo E. Mack, M.D., to Miss Margaret Wilson Muir, both of Omaha, Nov. 17, 1914.

Thomas C. Beeler, M.D., to Miss Mary Carter, both of Guymon, Okla., recently.

Deaths

Frank Dean Bain, M.D. Bellevue Hospital Medical College, 1872; a Fellow of the American Medical Association; president of the Ohio State Medical Association in 1905 and 1906; formerly president of the Northwestern Ohio Medical Society and Erie Railway Surgeons' Association; surgeon of the Chicago and Erie, Cleveland, Columbus, Cincinnati and St. Louis and Toledo and Ohio Central railways at Kenton, Ohio; formerly major surgeon, Second Ohio Infantry, U. S. V., in charge of the Reserve Hospital of the First Army Corps in Porto Rico during the Spanish-American War; formerly secretary of the Board of Health of Kenton, Ohio; died at his home in Kenton, February 21, from angina pectoris, aged 64.

John Patrick McGowan, M.D. Bellevue Hospital Medical College, 1888; a member of the Medical Society of the State of New York; American Urological Association and Association of Military Surgeons of the United States; consulting surgeon to St. Bartholomew's Hospital; consulting genito-urinary and dermatologic surgeon to the French Hospital, New York City; visiting physician to the New York Foundling Hospital; brigade surgeon Naval Brigade, N. G., N. Y.; passed assistant surgeon, U. S. Navy, during the Spanish-American War with service on the gunboat *Yankee*; assistant surgeon and surgeon, N. Y. N. M.; died at his home in New York City, February 28, aged 49.

Henry Lambard Nichols, M.D. Medical School of Maine, Brunswick, 1845; a Fellow of the American Medical Association; and for more than half a century a practitioner of Sacramento, Cal.; secretary of the state of California under Governor Haight; once president of the Sacramento County Board of County Supervisors; at one time a trustee of the state library; for six years a member and at one time secretary of the State Board of Health; for several terms health officer of Sacramento city and county; died at his home in Sacramento, February 16, aged 91.

Henry Cutler Baldwin, M.D. Harvard Medical School, Boston, 1884; a Fellow of the American Medical Association; for many years a member of the staff of the Massachusetts General Hospital in the department of nervous diseases; medical expert of the Boston Elevated Railway Company; for several years a member of the advisory board of visitors, public institutions and chairman of the board of trustees for the insane, in Boston; one of the best-known neurologists of New England; died at his home in Boston, February 25, from acute nephritis, aged 55.

John Matthew Kara, M.D. College of Physicians and Surgeons, Chicago, 1910; a Fellow of the American Medical Association; and a well-known Bohemian practitioner of Chicago, who went to Europe last fall as a member of the Bohemian-American Red Cross unit; died in Skopilje, Servia, February 27, from scarlet fever contracted during his work in war hospitals, aged 27.

Colbert Hanchett Cannon, M.D. National Medical University, Chicago, 1905; Hering Medical College, Chicago, 1906; formerly lecturer on pediatrics in Hering Medical College; a member of the Oregon State Medical Association; from 1879 to 1894 an official of the Great Northern Railway; died at his home in Eugene, Ore., February 18, from organic heart disease, aged 68.

Fred W. A. Brown, M.D. McGill University, Montreal, 1892; a Fellow of the American Medical Association; for four terms county physician of Winnebago County, Wis.; a specialist on diseases of the skin; at one time assistant in the Northern State Hospital, Winnebago; was found dead in his office in Oshkosh, Wis., February 20, from angina pectoris, aged 52.

Hugh Lewis Sutherland, M.D. Tulane University, New Orleans, 1873; of Benoit, Miss.; formerly a Fellow of the American Medical Association; a member of the Mississippi State Medical Association; health officer of Bolivar County, Miss., for many years; died at the home of his daughter in Cleveland, Miss., February 17, from cerebral hemorrhage, aged 66.

Charles Eugene Lack, M.D. University of Pennsylvania, Philadelphia, 1895; a Fellow of the American Medical Association; assistant surgeon to the Methodist-Episcopal and Norwegian hospitals, Brooklyn; surgeon to the Coney Island Hospital and clinical assistant in the Brooklyn Eye and Ear Hospital; died at his home in Brooklyn, February 26, aged 43.

Patrick James Greely Waldron, M.D. Creighton Medical College, Omaha, 1897; a Fellow of the American Medical Association and one of the leading practitioners of the Black Hills; coroner of Pennington County, S. Dak., and city physician of Rapid City; died at his home in Rapid City, February 14, from pneumonia, aged 42.

Herman Rose, M.D. University of Greifswald, Germany, 1872; a Fellow of the American Medical Association; once coroner of Webster County, Iowa, and president of the local German-American Alliance; died at his home in Fort Dodge, Ia., February 19, from disease of the kidney, aged 59.

George H. Rhoads, M.D. Jefferson Medical College, 1879; of Tobyhanna, Pa.; a Fellow of the American Medical Association; a member of the Coolbaugh Township Board of Education; died in a sanatorium in Savannah, Ga., February 25, from cerebral hemorrhage, aged 58.

John T. Iams, M.D. Bellevue Hospital Medical College, 1871; a Fellow of the American Medical Association; at one time vice-president of the Pennsylvania Training School, Morganza; died suddenly at his home in Waynesburg, Pa., February 15, from heart disease, aged 68.

Marshall Jacob Brown, M.D. Queens University, Kingston, Ont., 1856; surgeon in the Frontenac Cavalry during the Fenian Raid in 1866; for many years a practitioner of Cataraqui, Ont.; since his retirement a resident of Kingston; died at his home, February 14, aged 83.

John Jacob Blumer, M.D. University of Pennsylvania, Philadelphia, 1868; for many years a practitioner of New Glarus, Wis., but for four years a resident of Milwaukee; died at his home in that city, February 10, from carcinoma of the stomach and intestines, aged 71.

Joseph H. Moore, M.D. Missouri Medical College, St. Louis, 1873; a specialist in electrotherapeutics of Washington, D. C.; chief of staff of the quarantine hospital in St. Louis during the yellow-fever epidemic; died at his home in Washington, February 14, aged 65.

Frank Munson Stagg, M.D. College of Physicians and Surgeons in the City of New York,, 1898; of Passaic, N. J.; at one time assistant chief of the volunteer fire department of Passaic; died in a hospital in New York City, February 15, from heart disease, aged 40.

Gerald O. Edmunds, M.D. College of Physicians and Surgeons, Chicago, 1892; a Fellow of the American Medical Association; for eight years coroner of Benzie County, Mich.; died at his home in Honor, Mich., February 11, from cerebral hemorrhage, aged 48.

John Harlan Van Deren, M.D. Pulte Medical College, Cincinnati, 1893; a Fellow of the American Medical Association, one of the best-known practitioners of Cynthiana, Ky.; died in the Harrison Hospital in that city, February 14, from pneumonia, aged 44.

Henry Cecil Haven, M.D. Harvard Medical School, 1879; a member of the Massachusetts Medical Society; president of the Stockbridge Golf Club; a prominent practitioner of western Massachusetts; died at his home in Stockbridge, February 19.

Lycurgus B. Walton (license, Tennessee, 1889), a practitioner of Robertson County since 1848; formerly a member of the Tennessee State Medical Association; died at his home in White House, Tenn., February 13, from senile debility, aged 87.

Francis M. Magers (license, Indiana, 1897), a member of the Indiana State Medical Association; since 1865 a practitioner of Churubusco, Ind.; died at his home in that place, February 15, from disease of the heart and kidneys, aged 77.

Robert Ray Wilson, M.D. University of Toronto, 1914; an officer of the University of Toronto Training Corps and on orders for active service in Europe; died at his home in Toronto, January 22, from lymphosarcoma, aged 24.

James Richmond, M.D. College of Physicians and Surgeons, Chicago, 1887; a member of the Wisconsin State Medical Society; died suddenly in his home at Loyal, Wis., February 13, from heart disease, aged 57.

Mary F. Munson, M.D. Hahnemann Medical College of the Pacific, San Francisco, 1886; one of the first women practitioners of Toledo, Ohio; died at the home of her daughter in that city, February 14, aged 84.

John A. Ladd, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1856; surgeon of U. S. Volunteers during the Civil War and one of the oldest practitioners of Iowa, died at his home in Traer, February 13, aged 84.

Marcus L. Fullenwider, M.D. Rush Medical College, 1875; formerly of Mechanicsburg, Ill., but for thirty years a resident of Kansas; died at his home in Eldorado, Kan., February 14, from heart disease, aged 65.

Henry Theodore Lewis, M.D. College of Physicians and Surgeons, Chicago, 1897; formerly a practitioner of Wisconsin, but for four years a resident of New Mexico; died at his home in Alameda, N. Mex., aged 42.

John Charles Bridgman, M.D. Rush Medical College, 1903; a Fellow of the American Medical Association; of Pocahontas, Ia.; died in the Iowa Methodist Hospital, Des Moines, February 12, aged 44.

William John Ketchum, M.D. University of Michigan, Ann Arbor, 1875; a member of the Michigan State Medical Society; died at his home in Dowagiac, Mich., February 21, from pneumonia, aged 64.

Dwight Reed, M.D. New York University, New York City, 1848; for sixty years a practitioner of Homesdale, Pa.; died at the home of his daughter in that place, February 19, from senile debility, aged 90.

Frank Fuller (license, New York), a practitioner and dentist since 1857; governor of Utah during the Civil war; died at his apartments in New York City, February 19, from senile debility, aged 87.

Thomas Biddle, Jr., M.D. University of Pennsylvania, Philadelphia, 1876; a widely known naturalist of Philadelphia; died at his home in that city, February 19, from pneumonia, aged 61.

Leslie Glover, M.D. Kansas City Hahnemann Medical College, Kansas City, Mo., 1911; died at his home in Williamsburg, Mo., February 2, from disease of the intestines, aged 34.

Cliff Lindsey, M.D. Rush Medical College, 1892; of Billings, Mont.; surgeon to St. Vincent's Hospital; died in Mercy Hospital, Prescott, Ariz., February 4, from nephritis, aged 48.

Paul E. Trees, M.D. Medical College of Indiana, Indianapolis, 1905; a member of the Indiana State Medical Association; died at his home in Maxwell, Ind., about February 22, aged 35.

John G. Nehrbas, M.D. Ensworth Medical College, St. Joseph, Mo., 1896; of Indianapolis; died in the Methodist Hospital in that city, February 23, after a surgical operation, aged 44.

Joseph Palmer Watts, M.D. Harvard Medical School, 1905; a member of the Massachusetts Medical Society; died at his home in Wakefield, Mass., February 17, aged 31.

Charles Abner Scribner, M.D. Kentucky University, Louisville, 1906; of Louisville; died suddenly at the home of his brother in Bloomington, Ind., February 20, aged 56.

Louis Abel Combe, M.D. St. Louis University, 1903; a Fellow of the American Medical Association; died suddenly in his office in Fremont, Iowa, February 12, aged 44.

Ralph R. Holson, M.D. Kentucky School of Medicine, Louisville, 1891; died at his home in Iola, Ill., about February 17, from the effects of carbolic-acid poisoning.

Loyal Bishop Griffin, M.D. Medical College of Indiana, Indianapolis, 1890; died at his home in Greenfield, Ind.: February 17, from cerebral hemorrhage, aged 56.

Alexander J. Peet, M.D. Albany (N. Y.) Medical College, 1877; formerly of Brooklyn; died at his winter home in Miami, Fla., Dec. 13, 1914, aged 58.

E. L. Hesterly, M.D. Atlanta (Ga.) Medical College, 1891; died at his home in Greenwood, Ark., February 14, from cerebral hemorrhage, aged 71.

Henry T. Pittman (license, Arkansas, 1903), of Hempwallace, Ark.; died in the Livingston Hospital, Hot Springs, Ark., February 10, aged 59.

Lefferson A. D. Allen, M.D. University of Pennsylvania, Philadelphia, 1867; died at his home in Woodstown, N. J., February 17, aged 75.

Thomas Clay Canine, M.D. University of Nebraska, Lincoln, 1886; of Lincoln, died at Excelsior Springs, Mo., February 17, aged 61.

John Joseph McFadden, M.D. Jefferson Medical College, 1888; died at his home in West Philadelphia, about February 12.

Emil M. Sidler, M.D. Milwaukee Medical College, 1892; died suddenly at his home in Cudahy, Wis., February 4, aged 51.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SANMETTO

Report of the Council on Pharmacy and Chemistry

The following report on Sanmetto (Od Chemical Company, New York) has been adopted by the Council on Pharmacy and Chemistry, which authorized its publication.

W. A. Puckner, Secretary.

Sanmetto is one of the oldest proprietaries on the market. Its advertisements have been familiar to the readers of medical journals for several decades past. It is a typical nostrum. It is secret although the promoters have published various "near-formulas." The following are some of the statements regarding composition:

> "A Scientific Blending of *True* Santal and Saw Palmetto with Soothing Demulcents in a Pleasant Aromatic Vehicle."

As this did not disclose the identity of the demulcents or the quantity of the alleged active constituents, the "formula" was, of course, meaningless.

Again it is:

> "A Scientific blending of *true* Santal and Saw Palmetto in a pleasant aromatic vehicle."

Here the reference to "soothing demulcents" is omitted. The information furnished physicians at the present time is:

> "It is a blend of harmonizing drugs."

A letter from a physician requesting information as to the exact composition of Sanmetto recently elicited the following reply:

> ". . . Sanmetto is a blending of true santal and saw palmetto with soothing demulcents in a pleasant aromatic vehicle. The demulcents are introduced not only for the purpose of modifying the irritant properties of the santal, but to add distinctively to the soothing properties of the finished product upon the mucous membrane of the urinary tract, and are not mentioned in our published formula for the simple fact that if we gave them, then we would do the advertising and the substitute manufacturer would engage in the 'unfair competition' of putting on the market his concoction, claiming to be made exactly after our formula, without spending a cent for advertising, relying upon our propaganda work to sell his substitute, although not the same article as nor equivalent to Sanmetto, from the fact that he would be working in the dark as to the processes in the manufacture of our product. There is no mineral substance in Sanmetto, nor any other ingredient that is detrimental in any way whatsoever. . . .
>
> "OD CHEM. CO.,
> "M. Haman, Pres't."

THE VALUE OF SANTAL AND SAW PALMETTO

The foregoing warrants the assumption that the active ingredients of the mixture are sandalwood oil and saw palmetto.

There was a period when the internal treatment of gonorrhea had a marked vogue. Balsamic remedies received the approbation of the medical profession as the most specific of internal remedies for this disease. As a representative of this class, sandalwood oil was very highly esteemed and had great popularity. As in other similar instances, this popularity was commercialized and the drug became the basis of many secret or semisecret mixtures, including "specialties" of pharmaceutical houses.

Sabal or saw palmetto is an official drug which at one time was used in genito-urinary affections, but now is seldom used, presumably because it has been found practically worthless. It is not mentioned by most pharmacologists, and those who do mention it regard it as of doubtful value. It is included among the preparations recommended for deletion as given in the report of the Committee on the Pharmacopeia of the American Medical Association (The Journal, Sept. 4, 1909, p. 792).

Even granting that sandalwood oil and saw palmetto do have therapeutic value, no one would think of regarding either or both of these preparations as of use except in inflammatory conditions of the genito-urinary tract, especially gonorrhea.

If one is to believe the advertisements, however, the combination of these drugs in Sanmetto is a wonderful medicine. One might even conclude that there are few conditions in which it cannot be given with profit. For instance:

> "In Nervous Diseases, especially Neurasthenic cases with origin in some sexual or genito-urinary disorder, for its action as a vitalizing tonic and reconstructive, restoring nutrition to germ plasm, relieving pathological conditions and for soothing and sustaining the nerves controlling the parts."

Bear in mind in reading the foregoing statement and the following that we are concerned with two drugs whose effects are exerted on mucous membranes especially of the genito-urinary tract.

> "In Gestation Cases, showing tendency to albumin and convulsions, for toning the pelvic organs, clearing up the urine and cleansing the urinary bladder and outlet. In the Lying-in-Room for relieving the affections of urethra and bladder, painful strangury of the urethra and painful micturition due to the pressure of fœtal head upon the neck of the bladder and upon the urethra during labor, and infection, either septic or gonorrheal."
>
> "In Weakness of the Kidneys, causing loss in tone and general health and Impairment of Eyesight—for strengthening the kidneys and bladder and toning the nervous system; and also for aiding in the constitutional treatment of Gonorrheal Infection of the Eyes.
>
> "In the treatment of the Prostate, Testes, Mammæ, Ovaries, and Urethra, Kidneys and Bladder, for its soothing, slightly antiseptic, aphrodisiac, toning and restoring action to the mucous membrane and glands. By its use the parts affected in many cases returning to their normal condition."

While the reference to its aphrodisiac action and to the restoration of parts to the normal may have little interest to physicians, it may be counted on to appeal to the sexual neurasthenic. In premature senility:

> "Sanmetto . . . is unexcelled as a vitalizing tonic to the withered glands of the reproductive system, promoting their normal secretory activity."

These claims are not only absurd but also harmful; they tend to perpetuate a hypochondriacal state of mind in the class of patients appealed to—the sexual neurasthenic. There is, however, a more serious side; the tendency of certain other claims made for the preparation are vicious and dangerous as well as misleading. The advertising claims are likely to induce some physicians—those who accept advertising "literature" as dependable—to belittle the importance of serious diseases of the sexual organs and to be content with Sanmetto, which, even if it gave as good results as other balsamic remedies, would be, at best, only a halfway measure. Thus in an advertising pamphlet physicians are given this advice as to the treatment of gonorrhea.

> "To provide the needed rest the patient should be instructed to simply keep the parts clean with warm water for the first week and let the discharge continue until you can control it by internal medication. I wish to emphasize the fact that there is no way that any acutely inflamed portion of the genito-urinary tract can get the rest required so completely as by administration of Sanmetto. . . . After the acute gonorrhea has begun to subside the Sanmetto should be aided by mild astringent injections."

If there is any well-established fact in medicine, it is that gonorrhea is a serious disease—serious alike to the sufferer and to the community—and one which needs careful attention from the very first. To claim, either directly or by implication, that it can be cured by such a mixture designed to act on the kidneys, bladder and nervous system is false and dangerous doctrine.

The physician who prescribes Sanmetto prescribes a secret medicine for conditions which he is presumably competent to treat with simple remedies of which he knows the origin and action and which he can vary to suit the needs of the individual.

Sanmetto is a secret nostrum the exploitation of which is an invitation to haphazard, uncritical therapy and a menace to public health.

[EDITORIAL COMMENT:—Next week in commenting on another of these "ethical proprietaries" we shall take occasion to refer to the "pseudochemical" company which supplies physicians with Sanmetto.]

TUBERCLECIDE—AN ADVERTISING DODGE

Public Health Reports, Feb. 12, 1915, calls attention to the shameless attempt by the promoters of the nostrum "Tuberclecide," an alleged cure for tuberculosis, to secure credit for their fraudulent preparation by representing that the government authorities were to test it. This effort and the character of Tuberclecide were exposed in THE JOURNAL and in our pamphlet on "Consumption Cure Fakes." It is said that "the advertising literature . . . appears to indicate that an investigation of the curative value of this compound has been or is being made by direction of the President." Inquiries are constantly being received by the U. S. Public Health Service regarding "Tuberclecide," prompted no doubt by the advertising matter referred to and perhaps by other means best known to the promoters. The report declares that no investigation of the preparation in question has been made or is contemplated, and that, in fact, such investigation was specifically declined. The Public Health authorities again warn the public that "there is no drug known, however rare or expensive it may be, that has any *special curative action* on this disease, and all remedies advertised as such are to be avoided."

Correspondence

A Treatment for Morphin Addiction

To the Editor:—The Chicago House of Correction and the Emergency Hospitals have, during the past fifteen years, been called on to treat over 3,000 cases of narcotic drug addiction, principally morphinism. The large number of cases has given an opportunity for developing a treatment which we have found worth while. Many physicians have requested us to publish our formula, and, with the introduction of the Harrison law, the largely increased demand for such a treatment has caused us to describe the treatment. This must be regarded as a preliminary report.

When patients are received in the hospital they are given a preparatory dose of saline cathartic. The basis of the medical treatment is the following:

Scopolamin hydrobromid	gr. 1/100
Pilocarpin hydrobromate	gr. 1/12
Ethyl-morphin hydrochlorid—(dionin)	gr. ss
Fluid extract cascara sagrada	♏ xv
Alcohol	♏ xxxv
Water qs. ad	℥ i

The dose is varied according to the extent of the addiction. Patients vary from 1 or 2 grains to as many as 60 to 90 grains a day of morphin. When more than 10 grains of morphin per day are being taken, 60 minims of the above mixture is given every three hours day and night for six days. On the seventh day the dosage is reduced to 30 minims, the eighth 15 minims, and on the ninth 15 minims three times a day instead of every three hours day and night. On the tenth day the mixture is discontinued and strychnin nitrate, one-thirtieth of a grain, three times a day, is used. On the eleventh day strychnin nitrate, one-sixtieth of a grain, is given, and this is continued for a week. During the first five days only light diet is given, but patients are encouraged to take liquids freely.

If a patient is using less than 10 grains of morphin a day, the dose should be 30 minims of the mixture to begin with. If he is using less than 5 grains, 15 minims is used as a starting dose. During the first three days the patients suffer from insomnia, and in about 10 per cent. of the cases vomiting; this is to be expected. If the pulse goes below 40 or over 120, the mixture is stopped for a single dose. If there is collapse, one-half grain of ethyl morphin hydrochlorid or one-fourth grain morphin is given hypodermically. In about 4 per cent. of the cases a scopolamin delirium may develop. In such instances the mixture should be given without scopolamin for two doses, and then continue with scopolamin in one two-hundredth-grain doses.

During the treatment no other drugs should be used. After the fifth day the patients will have no further desire for morphin. Up to this time they care very little for food, but after the fifth day they develop a ravenous appetite and will gain weight rapidly. Extremely emaciated patients will gain a pound a day for the first thirty days.

As stated, the results of the treatment have been, to our mind, quite efficient, and have been found on comparison to secure more lasting results than the Lambert-Towns atropin treatment. The patient should be directly under the physician's care, but after eleven days, the strychnin treatment of seven days may be safely entrusted to the patient.

The final results are, of course, dependent on the cause of the addiction. If, since the beginning of the habit, the cause has been removed, the patients are permanently cured and do not return to the habit. Where the cause persists, whether it be functional neurosis, a degenerate mentality or criminality, the patient occasionally returns to be treated anew. The treatment of the cause should be borne in mind at the time any corrective treatment is undertaken.

Charles E. Sceleth, M.D., Chicago.

[Comment.—Dr. Sceleth is medical superintendent of the House of Correction and Sceleth Emergency Hospitals, Chicago. In these two institutions, which are practically one, all police cases in the city of Chicago are handled, and cases of drug addiction are referred practically and invariably by other hospitals to them. Ethyl-morphin hydrochlorid is the hydrochlorid of the ethyl ester of morphin. The product was first introduced by Merck & Co. under the trade name "Dionin." See New and Nonofficial Remedies, 1914, p. 209.]

Pyorrhea Dentalis and Alveolaris

To the Editor:—In their article on this subject (The Journal, Feb. 13, 1915, p. 553), Bass and Johns state positively what they mean, since they define what in their opinion takes place; for they say: "Pyorrhea dentalis and alveolaris is one of the most prevalent diseases of man. In our studies we have found it present to some extent in more than 95 per cent. of all adults examined. Something of its importance may be suggested by the fact that more than half of all the permanent teeth lost are lost from this disease. Each tooth lost represents a suppurative process in the mouth of at least a few or usually many years." One would naturally inquire, Were the patients selected because of pus about the teeth, were they taken from dispensary clinics or were they observed in the office of a reputable practitioner of dentistry? Most adults in dispensaries, poorhouses, insane asylums, etc., have uncleanly mouths and teeth, with calcic deposits and pus infection. This is not the case with patients who go to the dentists from year to year and range from 5 years and up.

My own researches have shown that every person, after the first teeth have erupted, has an inflammation of the alveolar process to a greater or less extent throughout life; that about 10 per cent. of persons have pus, while 90 per cent. have inflammation and absorption of the bone without pus infection. It would be difficult for the authors to demonstrate that "each tooth lost represents a suppurative process in the mouth." The term "pyorrhea alveolaris" they use offhand in a general way.

They say, "The specific cause of pyorrhea dentalis and alveolaris is endamebas." How do they know that the disease is due to the endamebas? The mere fact of finding them in the pus about the teeth does not prove that they cause the disease or even the pus infection. They are also found in other parts of the mouth and throat. It has been stated by Miller and others that there are at least 150 varieties of germs in the mouth and about the teeth. Why select the least harmful one according to Professor Chiavans (*Dental Cosmos,* August, 1914, p. 948), and give it all the credit for pyorrhea and allow the 149 remaining most violent bacteria to be innocent bystanders? This is a paradox. Why did they not conduct their researches according to the law of Koch, and inject the germs into the mouths of animals, produce the disease and then cure it by injecting emetin? The authors assert that "the constant presence of endamebas in the presence of the disease, and their absence in the absence of the disease, coupled with their situation in the lesions, and finally the coincident rapid recovery of the disease with the disappearance of the endamebas following treatment with a specific endamebacide, serve to establish the parasite as the specific cause beyond reasonable doubt." This reasoning can hardly be considered convincing by our modern methods of research.

No one up to this date has demonstrated that the inflammation and absorption of the alveolar process is a germ disease. On the other hand, my own researches made on man, monkeys, and many other animals show that the disease is due to irritants, both local and constitutional, and that pus infection is a secondary consideration. Every dentist has produced the disease by faulty manipulation, producing irritation and local inflammation which has progressed until exfoliation of the tooth or teeth has taken place without pus infection. The same is true of constitutional irritants and diseases such as asthma, kidney lesions, auto-intoxication, drug and metal poisoning, and by lowering the vitality of the patient and tissues.

The authors again say: "The infection usually begins around the back teeth and exists for months or years before the patient suspects its nature. The interdental soft tissue is most likely to be injured and to be the seat of the closed ulcers favorable for infection; therefore the disease begins there first in most instances." The experience of every dentist will bear me out by the statement that the "back teeth" are no more likely to be involved than any other teeth in the jaw. The alveolar process about the anterior teeth is thinner, and it is more liable to receive a local injury and become inflamed than that about the posterior teeth. When the cause is due to constitutional irritation, the process about a tooth which has to a certain extent lost its normal function is the one first involved, as a tooth with too much pressure, or one that has no antagonism, or one whose pulp has been destroyed, etc.

It is true that the inflammation may proceed for years or until the tooth becomes loose without the patient being aware of the fact. The first reliable symptom of the inflammation is bleeding of the gums. Under the head of the treatment, emetin is used because it is "such a perfect endamebacide." What becomes of the 149 other germs about the teeth, many of which are of the most pathogenic nature? Why not use iodin and destroy the 150 varieties at one treatment, if it comes in contact with all the germs? The fact is that pus is nearly if not always associated with the calcic and other deposits on the necks and roots of the teeth. Remove this and the pus is destroyed without a germicide. Indeed, when the deposit is deep down on the root of the tooth and an attempt has been made to remove it, if pus is still present it is an indication that the deposits have not all been removed. If the inflammation and absorption have become well established, the disease (not pyorrhea) is rarely if ever cured in the sense that other diseases of the body are cured. It requires constant attention every few weeks. Systemic disease due to focal infection of the mouth is not considered in this paper. To enter into details of my own researches on this subject would require too much space.

Eugene S. Talbot, M.D., D.D.S., Chicago.

The Taboo on Adaptation.—It would seem that some persons find the very word adaptation of too questionable a reputation for mention in polite scientific society. Allow me to illustrate by a leaf taken from my own notebook. I once ventured to publish a small experimental work on the movements of the fresh-water Hydra with respect to light. What was my surprise to receive a reproof from a friendly critic, because I had not been content with an objective description of the movements but had also been so indiscreet as to emphasize their evident utility to the animal. I was no doubt too young then—I fear I am too old now—to comprehend in what respect I had sinned against the light.—Edmund B. Wilson, *Science.*

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TECHNIC OF VITAL STAINING OF BLOOD

To the Editor:—Please let me know the technic of the so-called "vital staining" for blood. How would you differentiate the different types of cells in making a differential count? What is the composition of the stains used and where can I secure them? I am informed that this method of staining is particularly useful in showing up the blood platelets, but I cannot find any literature on the subject.

R. Penn Smith, M.D., Pittsburgh.

Answer.—By "vital staining" of blood is meant the staining of blood cells while absolutely fresh and without fixation by either chemical or physical means. For this purpose the stains are dissolved in perfectly indifferent mediums such as physiologic salt solution, Ringer-Locke solution and the like, or even directly in the blood itself. The blood is mixed with the stain and examined immediately, preferably on a warm stage. The staining solution may be placed on the slide, a drop of blood put with it and covered with cover glass, the margins being sealed with paraffin or some other means to prevent evaporation. Or a granule of the solid stain may be put in the drop of blood, which is then treated as stated. The blood may also be mixed with the stain as it flows out of the puncture, the required quantity being then transferred immediately to the slide. In typical vital staining the nucleus is not stained, only certain granules and fibers in the cytoplasm taking the stain. As the cell begins to die, "postvital" staining of whole or parts of the cell may occur. In making a cell count, the lymphocytes are readily distinguished by their size and the shape of the nuclei; the neutrophil leukocytes are distinguished by their fine granulations, and the eosinophils by their coarser granulations, even when the granules are not stained. Among the stains used in vital staining are methyl violet, neutral red fuchsin, toluidin blue, thionin, Nile blue, etc. Nile blue stains the blood plates nicely. Speaking generally, 0.1 c.c. of any one of these stains to about 250 c.c. of whatever indifferent fluid is used will make a serviceable solution for staining. Pappenheim recommends the following modification of Ringer-Locke solution: sodium chlorid, 6.0 c.c.; calcium chlorid, 0.2, potassium chlorid, 0.4; sodium bicarbonate, 0.02; grape sugar, 1.0, and distilled water, 1,000. Regret is sometimes expressed that hematologists do not use vital staining methods more frequently in the examination of blood, because thereby much might be learned in regard to changes incident to cell activity. Recently Cowdry has studied the mitochondria or small rod-shaped granules in the cytoplasm of human leukocytes after vital staining with janus green, obtaining very interesting results. It is essential that the right dye be obtained (diethylsafraninazodimethylanilin, New York Agency of Farbwerke-Höchst Company). It is used in a concentration of about 1:10,000 in 0.85 per cent. sodium chlorid solution.

THE PULMOTOR

To the Editor:—I am informed that the Bureau of Mines has on the advice of physicians discontinued the use of the pulmotor and has forbidden its employees to use it. Does this represent the present attitude of the best experience in the medical profession?

H. B. Ward, Urbana, Ill.

Answer.—The Commission on Resuscitation from Electric Shock and also the Committee on Resuscitation from Mine Gases, both of which were appointed through cooperation with the American Medical Association, made a careful investigation of the action of the pulmotor. This investigation involved a study of such clinical reports as could be obtained of the effects of use of the instrument, and also a study of the working of the instrument on a variety of animals. The results of these examinations showed, first, that the automatic action of the pulmotor is defective in that any obstacle in the air passages can increase the pressure, automatically cut off the flow of air and turn the instrument to withdrawing air. Thus frequently no efficient inspirations may be performed. In the second place, the instrument brings about expiration in a wholly unphysiologic manner by suction. This suction is liable to cause the smaller divisions of the air passages to collapse and stick together, and may produce hemorrhages. These harmful effects are particularly liable to occur if the instrument is used for any considerable period. Indeed, with use of the pulmotor it is impossible to keep animals alive for any great length of time without taking off the instrument and giving artificial respiration by a method which does not involve suction.

The commission was unable to find any careful analysis of the action of the pulmotor in clinical cases, and the ease with which it often fails to cause inflation of the lungs, together with the bad effects which occur if its sucking action in expiration is permitted to continue for a long period, led to the conclusion that the instrument was liable to be inefficient and dangerously deceptive. There seems to be no substantial foundation for the high credit given the machine in popular opinion—an opinion which has been largely based on the notoriety arising from newspaper reports. A full account of the findings can be had by writing for the report of the Committee on Resuscitation from Mine Gases, Technical Paper No. 77, of the Bureau of Mines, Washington, D. C.

STREPTOCOCCUS VACCINE IN SCARLET FEVER

To the Editor:—Are scarlatina bacterins and serobacterins being used to any extent as a means of producing immunity to scarlatina? Can you give any statistics or other proofs that they do or do not produce immunity?

Lynn M. Barnes, M.D., Decatur, Ill.

Answer.—By the vaccines mentioned is meant streptococcus vaccine, the streptococci being derived from cases of scarlet fever. There are no indications so far as may be learned from current literature that such vaccines are being used to any extent in order to prevent scarlet fever. This form of preventive inoculation was introduced by Gabritschewsky in 1905 and was used quite extensively in Russia, the statistics appearing to speak strongly in favor of the value of the method. R. M. Smith (*Boston Med.* and *Surg. Jour.*, 1910, clxii, 242) reviewed all the articles on the subject up to 1910, and he concludes that Gabritschewsky's vaccines appear to have some influence in controlling epidemics of scarlet fever and that they should be tried in this country. Biver (*Jour. Am. Pub. Health Assn.*, 1911, i, 643) published some preliminary notes on streptococcus vaccine against scarlet fever, but the final report has not appeared. Watters (The Journal, Feb. 24, 1912, p. 546) used vaccines made from cultures of streptococci from the throats of patients with scarlet fever in twenty-one nurses who had not had scarlet fever previously, the injections being made before the nurses went on duty in scarlet fever wards. One of these nurses contracted scarlet fever, while of fourteen other nurses who did not receive any injection, five contracted scarlet fever. These figures, though small, are suggestive.

It has been suggested that the rather frequent development of symptoms like those of scarlet fever after the injections by Russian physicians of Gabritschewsky's vaccine might be due to the presence of the real cause of the disease in the vaccines they used.

RECENT LITERATURE ON PNEUMOTHORAX

To the Editor:—Please give references to articles on artificial pneumothorax published during 1914.

Ward L. Fisher, M.D., Salem, Ore.

Answer.—The following is a list of such articles:

Mace, L. S.: Apparatus for Artificial Pneumothorax, The Journal, Jan. 3, 1914, p. 40.

Effect of Pneumothorax on Blood, Current Comment, The Journal, Jan. 10, 1914, p. 134.

Angelini, A.: Beneficial Immediate Results of Therapeutic Pneumothorax, *Riv. Osp.*, Nov. 15, 1913; abstr., The Journal, Jan. 10, 1914, p. 174.

Rochelt, E.: Permanent Therapeutic Pneumothorax, *Wien. klin. Wchnschr.*, Nov. 20, 1913; abstr., The Journal, Jan. 10, 1914, p. 173.

Bruns, O.: Beneficial Influence of Impeded Circulation with Therapeutic Compression of One Lung, *Beitr. z. Klin. d. Tuberk.*, xxix, No. 2.

Matson, R. C.: Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, *Northwest Med.*, January, 1914; abstr., The Journal, Feb. 14, 1914, p. 573.

Gray, E. A.: Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis, abstr., The Journal, Feb. 14, 1914, p. 564.

Montgomery, C. M., and Speese, J.: Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, *Pennsylvania Med. Jour.*, February, 1914; abstr., The Journal, March 14, 1914, p. 884.

Pomeroy, J. L.: New Sign in Pneumothorax, Particularly Artificial Pneumothorax, The Journal, March 7, 1914, p. 774.

Vrooman, C. H., and Wittich, F. W.: Apparatus for Producing Artificial Pneumothorax, The Journal, March 21, 1914, p. 929.

Real, C.: Induced Pneumothorax in Pregnant Women, *Beitr. z. Klin. d. Tuberk.*, 1914, xxix, No. 3; abstr., The Journal, March 21, 1914, p. 973.

Schaie, M.: Artificial Pneumothorax, The Journal, March 21, 1914, p. 900.

Knopf, S. A.: Apparatus for Production of Therapeutic Pneumothorax, *Am. Jour. Med. Sc.*, March, 1914; abstr., The Journal, April 4, 1914, p. 1118.

Carpi, U.: Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis, *Policlinico,* Rome, March 22, 1914; abstr., The Journal, May 2, 1914, p. 1444.

Boynton, C. N.: Preparation of Nitrogen for Artificial Pneumothorax, *Arizona Med. Jour.*, April, 1914; abstr., The Journal, May 9, 1914, p. 1506.

Davies, H. M.: Therapeutic Value of Gases Introduced into Pleural Cavity, *Brit. Med. Jour.*, April 25, 1914; abstr., The Journal, May 23, 1914, p. 1694.

Lapeyre, N.: Present Status of Operative Treatment of Pulmonary Tuberculosis, *Arch. gén. de Chir.*, April, 1914; abstr., The Journal, June 6, 1914, p. 1848.

Voorsanger, W. C.: Palliative Effect of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis, The Journal, May 9, 1914, p. 1450.

Von Adelung, E.: Induced Pneumothorax, The Journal, June 20, 1914, p. 1944.

Dunham, K.: New Applications of Artificial Pneumothorax as Therapeutic Measure, *Am. Jour. Roentgenol.*, July, 1914.

Frank, O., and Jager, N.: Dog's Lungs After Seven Months of Induced Pneumothorax, *Wien. klin. Wchnschr.*, June 18, 1914; abstr., The Journal, July 25, 1914, p. 363.

Kessel, L., and Taschman, M.: Study of Twenty-Nine Cases of Advanced Pulmonary Tuberculosis Treated by Artificial Pneumothorax, *Arch. Int. Med.*, August, 1914, p. 210.

Lyon, J. A.: Therapeutic Artificial Pneumothorax as Associate Treatment in Pulmonary Tuberculosis, *Boston Med. and Surg. Jour.*, Aug. 27, 1914; abstr., The Journal, Sept. 12, 1914, p. 969.

Mahoney, J. J.: Artificial Pneumothorax and Pregnancy, The Journal, Sept. 26, 1914, p. 1110.

HAINES' TEST FOR SUGAR

To the Editor:—While using Haines' test for sugar in the urine, I find that in a considerable number of cases in which there is apparently no reaction, if the test tube is left for an hour in a place where the temperature is near the freezing point, the entire contents will be heavily clouded with a whitish or whitish-yellow-tinged precipitate. Does this indicate the presence of sugar?

The Haines test solution is as follows:

Pure sulphate of copper	30	grains
Pure water	½	fluidounce
Make a perfect solution and add:		
Pure glycerin	½	fluidounce
Mix thoroughly and add:		
Liquor potassae	5	fluidounces

Directions for use: Take about 1 fluidram of the test solution and gently boil it, when no change should take place; now add 6 or 8 drops of the suspected urine and again bring to a boil. If sugar is present, an abundant yellow or yellowish-red precipitate is thrown down. If no such precipitate appears, sugar is absent.

C. R. Pickering, B.S., M.D., Muscoda, Wis.

Answer.—The precipitate may consist of copper urate together with a small amount of cuprous oxid produced by the reducing action of the uric acid. Such a precipitate should not be taken as indicating sugar.

WHITE SPOTS ON THE FINGER NAILS—LEUKONYCHIA

To the Editor:—A patient came to me with the complaint that her finger nails are greatly disfigured by the presence of white spots. The nails seem perfectly healthy, not brittle, not atrophied, not inflamed. They are thickly studded with white spots. The spots are not on the nails nor under them, but a part of them. I can find no literature on the subject, and shall be very thankful to you if you can offer any suggestion as to literature or as to treatment.

A. M. Mendenhall, M.D., Jamestown, R. I.

Answer.—This condition is described in text-books on the skin under the title "leukonychia." The discolorations occur in the familiar spots and occasionally in lines, very rarely as complete whitening of the nail. The etiology is not certainly known. Many of the spots seem to be due to traumatism, such as follows manicuring. They occur much more frequently during adolescence and in women, and usually in persons of nervous type. The white spots are probably due to the presence of gas (air) in the substance of the nail. There is no treatment and no means of prevention, except in so far as the spots are due to traumatism.

BEDSIDE RECORDS

To the Editor:—Kindly send me the addresses of a number of firms who publish case records or sheets for use in general practice.

I do not wish a bedside record, but one on which there is space for family history, personal history, result of examination, blood findings, urinalysis, etc.

W. V. Gage, M.D., Worland, Wyo.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 6-7. Sec., Dr. John Wix Thomas, Phoenix.

California: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

Colorado: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.

Idaho: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.

Minnesota: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Missouri: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Montana: Helena, April 5. Sec., Dr. William C. Riddell, Helena.

Rhode Island: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

Utah: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

West Virginia: Charleston, April 13. Sec., Dr. S. L. Jepson, 81 12th St., Wheeling.

Michigan October Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 13-15, 1914. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, with not less than 50 per cent. in each subject. The total number of candidates examined was 13, of whom 12 passed and 1 drugless practitioner failed. Thirty candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Illinois	(1914)	88.9
University of Michigan Dept. of Medicine and Surgery	(1913)	83.6
University of Michigan Homeopathic College	(1914)	85.6
Syracuse University	(1892) 75; (1913)	85.6
Vanderbilt University	(1910)	82.5
Milwaukee Medical College	(1905)	83.5
University of Toronto	(1905)	88
Western University, London, Ont.	(1912)	82.8
University of Krakow	(1895)	78.2
Royal Hungarian University, Budapest	(1912)	82.5
Royal University of Palermo	(1889)	90.5

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1913)	Illinois
Chicago Homeopathic Medical College	(1885)	Indiana
Northwestern University	(1914)	Illinois
Rush Medical College	(1897)	Indiana
University of Illinois	(1911) (1913) (1914)	Illinois
Drake University	(1912)	Iowa
Baltimore Medical College	(1911)	Maryland
Johns Hopkins University	(1912)	Ohio
University of Maryland	(1907)	W. Virginia
Detroit College of Medicine	(1886)	Ohio
St. Louis University	(1913,3)	Missouri
Cornell University	(1905)	New York
Long Island College Hospital	(1898) (1909)	New York
University and Bellevue Hospital Medical College	(1903)	New York
Eclectic Medical College, Cincinnati	(1906)	Arkansas
Medical College of Ohio	(1890)	Ohio
University of Oklahoma	(1913)	Oklahoma
Medico-Chirurgical College of Philadelphia	(1913)	Penna.
Vanderbilt University	(1889) Arkansas; (1913)	Tennessee
University of Virginia	(1909)	Hawaii
Marquette University	(1913)	Wisconsin
Milwaukee Medical College	(1907) (1909)	Wisconsin
Queen's University	(1912)	New York

Missouri December Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral, practical and written examination held at St. Louis, Dec. 14-16, 1914. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 23, of whom 15 passed and 8 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Arkansas	(1912)	75
Rush Medical College	(1914)	91

Hospital College of Medicine, Louisville	(1892)	75
Kentucky University	(1901)	76
American Medical College	(1914)	79
Ensworth Medical College	(1913)	75
St. Louis College of Phys. and Surgs.	(1912) 78; (1914)	75
St. Louis University	(1914)	83
Woman's Medical College of Pa.	(1891)	75
University of West Tennessee	(1914)	75
Vanderbilt University	(1882)	75
University of Texas	(1914)	83, 84, 91

FAILED

American Medical College	(1914)	1
St. Louis College of Phys. and Surgs.	(1908) (1909) (1910) (1913) (1914, 2)	6
University of Tennessee	(1914)	1

New Hampshire December Report

Mr. H. C. Morrison, regent of the New Hampshire State Board of Medical Examiners, reports the practical and written examination held at Concord, Dec. 29-30, 1914. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 11, of whom 8 passed and 3 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Tufts College Med. School	(1904) 84; (1913) 79, 82; (1914)	78
Dartmouth Medical School	(1911) 78; (1914)	87
Long Island College Hospital	(1912)	76
University of Vermont	(1912)	81
FAILED		
Harvard University	(1885)	62
University of Vermont	(1914)	68
National University, Athens	(1905)	47

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Columbian College	(1899)	W. Virginia
Georgia College of Eclectic Med. and Surg.	(1912)	Georgia
Maryland Medical College	(1912)	Georgia
Tufts College Medical School	(1905)	New Jersey

South Dakota January Report

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Pierre, Jan. 12-13, 1915. The total number of subjects examined in was 13; total number of questions asked, 115; percentage required to pass, 75. The total number of candidates examined was 14, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
American Coll. of Med. and Surg., Chicago	(1906)	84
Bennett Medical College	(1912) 82.6; (1913)	80.3
Northwestern University	(1913)	87.9, 88.5
Rush Medical College	(1914)	88.6
University of Illinois	(1914)	83.1
Drake University	(1913)	84
St. Louis University	(1912)	86.2, 86.8
John A. Creighton Med. Coll.	(1911) 80.2; (1912) 86.9; (1914)	85
Albany Medical College	(1908)	82

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Rush Medical College	(1913) Minnesota; (1912)	N. Dakota
University of Minnesota	(1903)	Minnesota

Vermont January Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Montpelier, Jan. 11-13, 1915. The total number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 9, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Boston	(1909)	76.6
University of Vermont	(1912) 82.4; (1913) 80; (1914)	80.1, 83.3, 84.
Queens University	(1907) 80; (1913)	80
Royal University of Rome	(1910)	76.5

Book Notices

Diseases of the Nose, Throat and Ear, Medical and Surgical. By William Lincoln Ballenger, M.D., Professor of Otology, Rhinology and Laryngology, College of Physicians and Surgeons, Department of Medicine, University of Illinois. Fourth Edition. Cloth. Price, $5.50 net. Pp. 1080, with 536 illustrations. Philadelphia: Lea & Febiger, 1914.

The opportunity of the reissue of this book has been used to revise the entire work and bring it up to date. As in past editions, the practical side is made a prominent feature; it will be found that the paragraphs on treatment are carefully arranged and well up to date, and recent operative measures have been given adequate recognition. Operative methods have always been a feature of Dr. Ballenger's book. The care with which each step in the operation is outlined and often illustrated will be of special interest to those who desire to perfect their operative methods. The author by his contributions in various departments of this subject is well qualified to speak authoritatively. The preface tells us that "the distinguishing feature of this edition will be found in its chapters on the labyrinth." The importance of this subject has weighed down the author with due responsibility, for we are told that the new matter on the labyrinth amounts to over 100 pages. We turn, therefore, with expectancy to these chapters. We have found many of these pages the least satisfactory in this edition. The author has not clearly distinguished between facts and hypotheses; there are many speculations which might well have been left out or treated with brevity. The subject of the physiology of the labyrinth is no doubt intricate, but the author could have made it less so had he clearly stated the primary function of the labyrinth and then pointed out how the reflex phenomena are related to this primary function. There are several colored diagrammatic plates illustrating what one might term popular ideas on the mechanism of nystagmus. Many of these ideas are pure speculation and are open to obvious objections. For instance, one is inclined to ask how it happens that a "cortical correction impulse arises in the right cortical center and acting through the third and sixth oculomotor nuclei of the right side produces a quick conjugate movement of both eyes to the right" (p. 865). One recalls that the physiologist insists that stimulation of the cerebral cortex turns the eyes to the opposite side. Again, one will ask where we have any support for Diagram xxvi and this statement (p. 914) to explain complete vestibular compensation: "The two halves of the cristae of the healthy labyrinth become equal in tonus, whereas normally the tonus is 2 to 1. Doubtless the stronger half atrophies and the weaker half hypertrophies until the two become equal." It is difficult to understand why it was necessary on page 862 to introduce diaschisis without any explanation of what is meant by it. Diaschisis, which is Monakow's idea of what the surgeons term "shock," is still hypothetic, and it is doubtful if it will help us to understand labyrinthine function. It is stated (p. 868) that experiments on animals show that when both labyrinths are destroyed simultaneously, there occur neither nystagmus nor reaction movements (by reaction movements the author refers to vertigo, nausea and ataxia). While true that no nystagmus occurs, it is not true that there are no reaction movements. From these pages one turns with pleasure to the chapter dealing with operations on the labyrinth, which is well written and contains good illustrations of the various steps. On page 872 it is stated that there is spontaneous cerebellar nystagmus "when there is disease of that portion of the cerebellum in which the vestibular centrums (Deiter's and Becterew's and the angular nuclei) and the vestibulo-cerebellar tracts are located." This is evidently an oversight, as it is unnecessary to point out that neither Deiter's nor Becterew's nucleus lies in the cerebellum. The chapter on the functional tests of hearing is well worth reading. The method of using these tests and the deductions are clearly stated without any unnecessary speculations in regard to controvertible points. One of the best recommendations of this book is the abundance of the illustrations, and as a rule the care which has been given to make them satisfactory. It is this obvious care that irritates one to see such a figure as 424 (p. 803), which is unsatisfactory and misleading. But on the whole the author and the publisher alike deserve credit for the way the illustrations have been done. The reader will find in the text a fund of information which in the matter of technic leaves little to be desired.

New and Nonofficial Remedies. Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to Jan. 1, 1915. Price, cloth, $1; paper, 50 cents. Pp. 426. Chicago: American Medical Association, 1915.

The appearance of the 1915 edition of New and Nonofficial Remedies marks the termination of the first decade of the work of the Council on Pharmacy and Chemistry of the American Medical Association. A reference to the work will show that it includes every proprietary remedy, introduced during the last twenty years, that may be regarded in any way as an advance in therapeutics. We need to mention only the substitutes for salicylic acid, for cocain, the derivatives of morphin, the colloidal metals, the principal agents of bacterial therapy, vaccines, salvarsan—all of which represent more or less advance in drug therapy.

In the present volume the grouping has been carried out more systematically than in previous volumes, and explanatory articles introduce each group. These articles review the chemical relations of the members of a group, discuss the pharmacologic action, and review the evidences of therapeutic value. Attention may be directed especially to the articles on serums and vaccines, which contain a conservative estimate of these remedies only to be arrived at by extensive reading and practical experience.

While the introduction contains the warning that the admission of a drug to the book does not necessarily constitute a recommendation, at the same time it is evident that the Council has grown more critical regarding therapeutic claims until it may be assumed that the inclusion of a preparation in the book means that the claims made by its manufacturers are supported by evidence at least worthy of examination. In some instances a statement is made to the effect that while the preparations have been accepted, the Council is not prepared to endorse the claims made for them, but has admitted them because it was not yet prepared to contradict the claims.

Of the detailed contents of the book little need be said. It presents much valuable information concerning proprietary and the newer drugs, both as to their chemical properties and their therapeutic applications. It well deserves to be a constant companion to the physician in his reading and a guide to the use of the newer drugs, proprietary and otherwise. There is no other book to which the physician can refer for unbiased information regarding proprietary medicines. This is a fact that every physician should know. He should also know that when he prescribes a proprietary or a drug that is not found in this book or in the Pharmacopeia, he is venturing on uncertain ground and prescribing drugs for which there is no official, or any other, standard.

Säuglingsernährung und Säuglingsstoffwechsel. Ein Grundriss für den Praktischen Arzt. Von Leo Langstein, Direktor des Kaiserin Auguste Victoria-Hauses zur Bekämpfung der Säuglingssterblichkeit im Deutschen Reiche, und Ludwig F. Meyer, 1. Assistent am Kinderasyl und Waisenhaus der Stadt Berlin. Third Edition. Cloth. Price, 11 marks. Pp. 408 with 46 illustrations. Wiesbaden: J. F. Bergmann, 1914.

This book, in its improved and somewhat enlarged second edition, can be highly recommended, not only to pediatricians but also to those who wish a more comprehensive idea of the work that has been done in the last years on the nutritional diseases of infancy. It includes the physiology as well as the pathology of the infant's nutrition. The chapters on infection and nutrition, vomiting, hunger and underfeeding are especially valuable in giving one their relationship to the subject of nutrition.

Miscellany

Mortality Statistics for 1913

The report of the Census Bureau on mortality in 1913 shows that the total number of deaths in the registration area was 890,848, a death rate of 14.1 per thousand of estimated population. This represents a slight increase over 1912, when the rate was 13.9, the lowest shown by the bureau. There has been a marked though not quite continuous decline in the death rate since 1880, when it was 19.8 per thousand, based on the deaths among 17 per cent. of the population. The estimates in this report are based on deaths among 65.1 per cent. of the population, the registration area comprising twenty-four states and about two-thirds of the population. The figures of foreign countries for 1913 are not available, but a comparison with 1912 shows that the countries having lower death rates were Norway, 13.4 per thousand of population; England and Wales, 13.3; Ontario, 12.4; Holland, 12.3; Australia, 11.2, and New Zealand, 8.9. The death rates in the various states are also given: Washington had the lowest mortality rate, 8.5, and New Hampshire the highest, 17.1. The chief reason for this difference is believed to be a difference in favor of Washington in the average of the population. In sixty-seven cities in which the colored population was in 1910 about 10 per cent. of the population, the deaths among the whites were 15.3 per thousand, while among the colored, which include Indians, Chinese and Japanese, the rate was 26.8. Another interesting point is that the average age at death for both sexes was 39.8; for males alone, 39.2, and for females alone, 40.6. This has no reference to the expectation of life as given in actuarial tables. Nearly 18 per cent. of all deaths were of infants under 1 year, and more than 25 per cent. were among children under 5 years. After 5 years it is the other extreme of life that has the highest death rate—between the ages of 70 and 74 for both sexes—a little higher among women alone. For men alone the period of highest mortality is between 65 and 69, when it constitutes 6.4 per cent. of the total deaths for males. The death rate for tuberculosis declined from 149.5 per hundred thousand in 1912 to 147.6 in 1913. It is said the rate from this cause shows an irregular though continuous decline since 1904. Likewise, the rates for typhoid fever, scarlet fever, diphtheria, croup, pneumonia (all forms), diarrhea and enteritis have undergone a general decline since 1900, though the rate was a little greater in 1913 than in 1912. It is significant, however, that there has been an almost continuous increase from year to year since 1900 in the death rates from cancer, organic heart diseases and endocarditis, and various forms of nephritis. In the twelve most important causes of death the greatest increase was that for cancer, which rose from 63 per 100,000 of population in 1900 to 78.9 in 1913. In only two years was there a decrease from the preceding year. According to this report, the horse and horse-drawn vehicles still cause more deaths than the automobile, the figure for the former being 2,921 and for the latter 2,488, a clear margin in favor of the automobile.

Result of Federal Investigation of Public Health Administration in the State

The report of the recent investigation of the health laws and public health administration of the state (Clark, Taliaferro: *Pub. Health Rep.*, Jan. 22, 1915), made by the U. S. Public Health Service in response to a request of the governor and health authorities of West Virginia, includes the following conclusions and recommendation: The State Board of Health lacks adequate authority and funds for the perfection of public health and has too large a membership for effective work. The discretionary powers of the board relating to public water supplies, stream pollution, excreted disposal, sanitation of public buildings, public institutions and labor camps need to be amplified. The law requiring reports of contagious and infectious diseases is inadequate and has not been enforced. The present system of registration of marriages, births and deaths is ineffective. A state department of health with a commissioner of health as its administrative head should be created to exercise the functions of the present State Board of Health. The commissioner of health should be given full authority to administer the health laws and regulations and to appoint and remove minor employees and should be given an advisory counsel of not more than six members, one to be a lawyer and one a civil or sanitary engineer. The State Department of Health should be given authority to examine food, drink and drugs offered for sale for public consumption and be made responsible for the food and drug laws of the state and should be authorized to regulate character and location of drainage, water supply, sewers, etc., in cities, towns and labor camps and to inspect and regulate sanitary conditions in all industrial establishments. A law for the registration of marriages, births and deaths should be adopted, fulfilling the requirements of the director of the United States Census.

Legislative Hearing on Foot-and-Mouth Disease

The governor and the Illinois general assembly heard a discussion recently by a number of invited animal husbandry and veterinary experts and editors of farmers' and drovers' newspapers who were called to advise them regarding foot-and-mouth disease in Illinois and methods for its eradication. The proceedings of the hearing are printed as a public document and circulated by the state. The pamphlet contains a conservative and dispassionate discussion of all the questions which the epidemic has raised in the minds of laymen and stockmen. It is shown that every speaker endorsed summary slaughter as the most effective and economical plan. The quarantine method was declared by those who had had experience in combating the disease as unsatisfactory and more expensive in the end than direct slaughter. It was shown that the disease frequently recurs in the same animals and that the frequent sequelae of abscesses and pus formations serve to perpetuate the disease and make the animals a constant menace. The opinion of both experts and laymen was that the course adopted by the Illinois authorities when they began to kill the infected and exposed stock was the proper one, and no criticism of this course was even intimated, and many of them urged even greater dispatch and thoroughness in eradicating the epidemic. Professor Mumford of the animal husbandry department of the University of Illinois said the situation throughout the country was well in hand except in Illinois, where the contagion had been most virulent and extensive. At that time more than 500 herds had been killed and only 25 infected herds remained alive. Since that time there has been some extension of the trouble and the stock yards in Chicago have a second time been placed under quarantine and the yards disinfected and shipments of live stock from the yards curtailed for a short period. The report contains much valuable information about all phases of the disease.

Manufacture of Chemical Wares.—Stoppage of the importation of chemical wares from the war zone has stimulated their production elsewhere. The clay products section of the U. S. Bureau of Standards has recently given attention to the production of purified clays out of which to make crucibles for chemical laboratories. Clays were found out of which such wares could be made of equal quality to those produced abroad as far as resistance to temperature was concerned, but owing to impurities in the clay they were defective in color. Methods of purification of the clay have now been devised which makes possible the manufacture of wares of good color, not only for laboratory purposes, but for all white ware. It is stated that one firm has taken up the manufacture of chemical porcelain. Lead glazes are still required for this ware, and the bureau is experimenting with leadless glazes for the purpose, to overcome the objection to lead glazes on account of their alleged injurious consequences to workmen. The bureau says, however, that in most factories in this country probably little injury is caused and in the white ware potteries ill effects of plumbism exist to a very slight extent.

Medicolegal

Sufficiency of Indictment and Instruction Under Medical Practice Act

(State vs. Fruitger (Iowa), 149 N. W. R. 634)

The Supreme Court of Iowa affirms a conviction under an indictment charging the defendant with unlawfully holding himself out as a physician and assuming to treat sickness and disease without a certificate authorizing him to engage in such practice. With reference to alleged defect in the indictment, the court says that, if it understands the argument, it was that the charge in the indictment that the defendant wrongfully assumed to act as a physician, "without having obtained from the State Board of Medical Examiners of the state of Iowa and recording the same in the office of the recorder of Adair County, Iowa, a certificate authorizing him to practice as such," was an accusation of two distinct offenses, namely, the unlawful act of assuming the duties or functions of a physician without having obtained the proper certificate, and, second, the unlawful failure to file such certificate in the office of the recorder of Adair County. But the question raised was decided by this court adversely to the contention of the defendant in the case of State vs. Zechman, 138 N. W. R. 387. The indictment could omit all reference to the fact of filing or failure to file the certificate, and conviction could be had and upheld on the charge and proof that no such certificate had ever been obtained. Adhering to the rule of the cited case, it followed that there was no duplicity in the indictment. The only charge of public offense therein was the act of assuming to practice as a physician in Adair County without obtaining the proper certificate, and the further statement with reference to an alleged failure to file the same in said county could be disregarded as surplusage. It could not be said that the indictment charged no offense against the statute. It is true that under a similar statute the Supreme Court of Nebraska has held an indictment in this form to be fatally defective; but this court is inclined to think that the conclusion reached by it in the Zechman case does no violence to the language of such indictment or to any established rule intended for the protection of the accused.

Counsel said that the effect of one instruction was to charge the jury that to sustain a conviction it was sufficient to show that the defendant acted, or advertised, or held himself out to be a chiropractor, but that was not a fair interpretation of the court's language. What the court did instruct was that if the defendant, by such methods or in such manner, invited sick or diseased persons to come to him to be relieved from sickness or bodily infirmities, and he did receive such persons into his office and treated or "adjusted" such persons for the purpose of relieving their said ailments, then the jury would be authorized to find that he did publicly profess to cure and heal, within the meaning of the law. That this is a sound proposition of law, according to the terms of the statute, can hardly be questioned.

It was quite evident that fundamental complaint was of the statute itself and of its enforcement as being essentially unjust and unduly restrictive on the profession and practice of the healing art. Even if this objection be justified, the court is without authority to right the wrong. The remedy is with the legislature alone.

State Board of Health Cannot Remove Ineligible County Health Officer

(Van Brakle vs. State Board of Health (Ore.), 144 Pac. R. 1170)

The Supreme Court of Oregon affirms a judgment holding that the State Board of Health exceeded its jurisdiction in ordering the removal of the plaintiff from the office of county health officer of a county, to which he had been appointed by the county court of the county under the provisions of section 4695 of the state statutes. The court says that from an examination of the proceedings before the State Board of Health it was clear, that the reason for the dismissal of the plaintiff was that it was deemed by the board that he was not eligible to hold the office. He was not removed for any of the causes specified in section 4695. The board of health is not authorized by the statute to remove a county health officer for the reason that he is ineligible to hold that office. If the plaintiff was unlawfully holding the office in question, as held by the State Board of Health, a complete remedy is provided by virtue of section 366, authorizing an action at law in the name of the state. The court appreciates the importance and difficulties in enforcing the statute for the protection of the public. In the wisdom of the legislature it seems to be contemplated that the county health officer should, by reports made to him, have the advice and assistance of skilled physicians who have in most cases given special attention to the diseases which are to be reported to the State Board of Health. The law makers did not see fit to clothe the Board of Health with power to remove such an officer in case of a mistake or disagreement in the diagnosis of a contagious disease, or for a failure of such officer on a diagnosis to discover a contagious disease. Where authority is conferred on a board to remove a public officer, the proceeding must be strictly pursued; and, where an officer is appointed for a term, he cannot be removed except by express authority.

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
Amer. Assn. of Pathologists and Bacteriologists, St. Louis, Apr. 2-3.
American Urological Association, Baltimore, April 13-14.
Georgia Medical Association, Macon, April 21-23.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Medical Society of the Missouri Valley, Omaha, March 25-26.
New York State Medical Society, Buffalo, April 27-29.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.

NEW YORK ACADEMY OF MEDICINE

Meeting held Jan. 21, 1915

Cerebrospinal Fluid in Health and Disease

Dr. Charles H. Frazier, Philadelphia: A study of the choroid plexus leaves little room for doubting that the cerebrospinal fluid is its excretory output. When foreign toxic substances are injected into the circulation the choroid plexus acts as an impermeable filter and prevents their entrance into the cerebrospinal fluid; on the other hand, when a dye is injected into the subarachnoid space, the brain and cord are at once stained. This throws a side light on salvarsan therapy. It would be more rational to inject salvarsan directly into the ventricles or subarachnoid space in cerebrospinal lues. The greater part of the fluid is derived from the choroid plexus, but some is derived from the perivascular system of the nervous tissues. The functions of the cerebrospinal fluid aside from those of a purely physical nature are analogous to those of the lymph nodes. It brings oxygen and glycogen to the tissues and carries away carbon dioxid and the products of brain metabolism. In every disease in which there is a departure from the normal in the quantity of cerebrospinal fluid, it is in the direction of increase and not of decrease. What are the factors which so disturb the balance between secretion and absorption as to be accompanied by a superabundance of fluid, and can one or the other be controlled? We found that thyroid extract had a specific inhibitory effect on the action of the choroid plexus. Alcoholic extracts of the thyroid gland were practically inert. Diiodotyrosin had the same retarding influence on the output of cerebrospinal fluid, although not in the same degree as the thyroid tissue itself. With the substances which acted as cerebral lymphagogues must be included those which caused a deficient oxygenation, such as pilocarpin, amyl nitrite, anesthetics and narcotics. The rate of the flow of the cerebrospinal fluid is practically uninfluenced by the ligation of the common carotid arteries.

The major part of the cerebrospinal fluid leaves the subarachnoid space via the venous channels rather than the lymphatics. Fluid escapes from the nerve sheaths and into the lymphatic system but slowly and in comparatively small quantities. The amount and rapidity of absorption is in proportion to the total area of subarachnoid space available. The cerebrospinal fluid is an important factor in certain clinical conditions. In all forms of meningitis, apart from lumbar puncture to relieve tension, there is no measure to be considered other than the use of specific serums when available. I have yet to see a patient with tuberculous meningitis of the acute type recover when pressure is relieved by decompression; nor have I heard of any case of suppurative meningitis which has been cured by drainage of the cisterna magna. Serous or aseptic meningitis presents very positive indications for the relief of pressure by such operative measures as subtemporal or suboccipital decompression. Tumors, irrespective of their size or seat, may exist without signs of tension. Palliative treatment of these tumors resolves itself largely into the problem of dealing with the associated hydrocephalus, and therefore, accompanying decompression or succeeding it, puncture of the corpus callosum should always be thought of. In our experimental work we have differentiated two types of hydrocephalus, an obstructive and a nonobstructive type. In the former of these, the chief pathogenic factor is delayed absorption, and the treatment becomes a problem of drainage. Of the latter, one cannot speak so positively; but it seems that treatment should be aimed at the secreting organ, the choroid gland. Thyroid extract gives some promise of being effective in suitable cases of hydrocephalus.

DISCUSSION

Dr. Max M. Peet: In the lantern demonstration I show the effect of intravenous injection of saline extracts of thyroid, brain, spleen, liver, ovary, testes and kidney. The extract of brain is shown to stimulate the secretion of cerebrospinal fluid by the choroid plexus. Thyroid extract was shown to slow markedly the rate of secretion of the choroid plexus. The other glandular extracts had no effect on the secretion of cerebrospinal fluid, although an apparent increase follows their injection. The records show that this apparent increase was purely a hemodynamic effect and was caused by the drop in arterial blood pressure which causes an increase in the venous sinus pressure which forces out preformed fluid from the ventricles.

A slide illustrating the new method of drainage of cerebrospinal fluid, devised by myself, is shown. Two strands of tubular silk are passed from the cisterna magna, down the back and into the pleural cavity. A case in which this was used successfully was reported.

F. H. Pike: The formation of the body fluids by mere filtration through the blood vessels, subject to change with every variation in the pressure in the blood vessels, would not be a good arrangement. There is now a considerable body of facts tending to show that the variations in the caliber of the blood vessels going to particular organs are sometimes brought about by the products of metabolism of these organs without any necessarily direct effort on the central vasomotor mechanism. It is possible that the varying needs of the tissues in general are met by the changes in the blood and lymph supply occurring in response to the local action of these products of metabolism. The peculiar conditions of the cerebral circulation are of interest in connection with the formation of the cerebrospinal fluid. We have a rigid brain case, and incompressible brain substance occupying most of the space, and incompressible fluids filling all the remaining space. No more material can be introduced without crowding out something else that is already present. Increase in arterial flow can be accomplished only at the expense of decrease in volume of venous blood or of cerebrospinal fluid if the cerebral arteries dilate. The flow of blood through the brain may possibly be increased without change in the volume of the vessels, if the systemic blood pressure rises appreciably or considerably. There is no good evidence of a vasomotor system in the cerebral vessels which acts in harmony with the systemic vasomotor nerves. The nerve cells of the central system seem to be protected from sudden changes in blood supply through these peculiar conditions of the cerebral circulation. The other possibility of variation in nutrition with changes in activity exists in the cerebrospinal fluid if it is regarded as a nutritive fluid. If we imagine that the brain cells produce during metabolism certain substances which in their turn act on the cells of the choroid plexus to produce a greater flow of cerebrospinal fluid, we have a mechanism by which the varying needs of the brain cells may be met. The seat of formation of this fluid and its course fit with the view that the cerebrospinal fluid is a nutritive fluid. Thus absorption becomes a necessity if the nutrition of the cells of the central nervous system is adequately provided for. Such a view seems plausible, but one cannot say that it has been demonstrated.

Dr. David M. Kaplan: Aside from the infections in which one finds the responsible micro-organisms, the cerebrospinal fluid also shows changes due to such general disturbances as diabetes, eclampsia, nephritis and jaundice. In diabetes, the presence of acetone is frequently a forerunner of a diabetic coma. In eclampsia, besides the increase in chlorids, appreciable quantities of lactic acid have been demonstrated. In nephritis, only those forms of the disease give rise to uremic states that show the accumulation of urea in the cerebrospinal fluid. When the renal impermeability is a mineral one, uremia, as a rule, does not develop. The physiologic limit of urea in the cerebrospinal fluid is 1 per cent. A fluid showing 3 per cent. or more is of very grave significance. In icteric states, one or the other of the constituents of bile is present in the fluid. Such fluids will occasionally show a positive Wassermann reaction, although no evidence of lues can be obtained. In anterior poliomyelitis, the acute stage of the disease is invariably accompanied by polynucleosis in the cerebrospinal fluid, which reaches its height in the preparalytic stage. The more chronic forms of the disease showing the paralyses are more often accompanied by an excess of protein matter and a variable pleocytosis. In the clinical picture known as "combined sclerosis," one frequently finds in the spinal fluid a mass of coagulation of protein matter which, as a rule, shows no pleocytosis and is frequently discolored yellow, a condition known as xanthochromia. These yellow fluids sometimes give the iron reaction and at other times do not, and hence they must be considered as having more than one origin. The discoloration and the peculiarly absent copper-reducing substance is more often encountered in endotheliomas than in gliosis of the cord. In the study of the various diseases of the nervous system caused by syphilis, neurologists tend to consider syphilis and general paresis as the two extremes from the diagnostic, therapeutic and prognostic points of view, and assign to tabes the intermediate position. There are certain unmistakable features which characterize the greater majority of fluids of the two extremes, namely, cerebrospinal syphilis and general paresis, which are only occasionally to be found in tabes. We find in cerebrospinal syphilis the highest and in general paresis the lowest cell counts, with certain exceptions. A fluid from a case of general paresis would always reduce copper; when this reduction is absent, one may exclude general paresis in making the diagnosis. In offering diagnostic suggestions from an analysis of the cerebrospinal fluid, one never depends on that feature alone, but correlates all the abnormal phenomena. In general paresis, the characteristic precipitation of colloidal gold is a very striking and constant feature. This, in connection with a positive Wassermann, a low cell count and protein excess, means general paresis, despite the fact that these findings may occasionally be obtained in patients who present very few symptoms suggestive of general paresis.

Dr. Bernard Sachs: In reflecting on the differences between this and other fluids, one notes the remarkable rapidity of secretion under certain conditions. In cases of central nervous diseases, particularly tabes and central lues, patients have been made comfortable after lumbar puncture, but in a few hours there will appear evidences of almost the same quantity as before puncture. These facts are of great importance and of physiologic interest. Another point of interest is the failure in the detection of cellular contents of the cerebrospinal fluid in cases of neoplasm in and around the spinal cord.

Dr. David J. Kaliski: Some examinations of spinal fluids have been made by Benedict of Cornell, and it was a surprise to find that arsenic introduced intravenously has been excreted within twenty-four hours by the choroid plexus and has been detected in the cerebrospinal fluid. This is rather contradictory to the findings of others. These facts are of great importance in the treatment of syphilitic diseases of the nervous system, and we should make no dogmatic statements regarding the absence of secretion from the choroid plexus after intravenous injections. In view of the rapid absorption of the spinal fluid it is rather far fetched to look on intravenous medication as a means of curing parenchymatous diseases of the central nervous system. In my experience, the presence of bile in the serum has never caused the Wassermann reaction to become positive.

Dr. John A. Fordyce: In the past two years, 700 spinal fluids have been examined in my laboratory with the following results: Active and progressive tabes: cells 11 to 235; globulin + +, Wassermann + + to 0.2 c.c. in the majority, some giving inhibition with 0.1 and 0.05 c.c. Blood serum positive in about two-thirds of the cases. Quiescent tabes: cells 3 to 20; globulin usually positive and Wassermann negative in the fluid and serum. It is rare to have a pathologic increase in cells and a negative Wassermann with larger amounts of fluid. Only in exceptional cases was there a lymphocytosis of 30 or over with a negative Wassermann. Radiculitis: cells 3 to 12; excess of globulin, Wassermann negative. In two cases the serum was negative; in a third it became strongly positive after a provocative injection. Optic atrophy: cells 10 to 150, globulin + + in all except three cases, one ± with 67 cells, Wassermann + + to 0.4 c.c.; another 23 cells, globulin ±, Wassermann negative; and the third 15 cells, negative globulin and negative Wassermann. These cases had had several courses of treatment before the puncture was made. In the remaining cases the Wassermann was positive, some with only 0.8 or 1 c.c. of fluid. Paresis: cells from 20 to 240, globulin + +, Wassermann complete inhibition in majority to 0.1. Serum also strongly positive. Dr. Fordyce had seen only one case with a negative Wassermann in the fluid, which, however, reacted positively to the colloidal gold test. Cerebrospinal lues: cells 20 to 1,000, globulin positive and Wassermann in the fluid and blood usually strongly positive. One case with 98 cells and a positive Wassermann and globulin in the fluid gave a negative blood reaction.

Endarteritis: The serologic picture is usually negative, except for the presence of globulin. Sometimes there is a slight increase in cells — 7 to 12. The blood serum was positive in two-thirds of the cases. Status epilepticus in a heredosyphilitic: Fluid negative; serum positive. This case had received a great deal of treatment. Heredolues (three cases with headache): Negative. Syphilitic choroiditis: Two were negative in all four phases; one gave a slight excess of globulin. Early secondary syphilis: In less than 20 per cent. in the absence of clinical symptoms pointing to involvement of the central nervous system in the early secondary stage, a mild pleocytosis and positive globulin with negative Wassermann in the fluid. The blood serum in all gave complete inhibition. Multiple neuritis in diabetes with symptoms simulating tabes: Cells 8, other phases negative. Anesthetic leprosy: Cells 5, globulin positive, Wassermann negative; in serum some inhibition. Multiple sclerosis: In the two cases cells numbered 12 and 16, respectively; other phases were negative. In another there were 6 cells with an excess of globulin. The Wassermann in serum and fluid was negative. Transverse myelitis, syringomyelia, spinal tumor and twenty-three indeterminate neurologic cases with obscure symptoms were negative in all four phases. Amyotrophic lateral sclerosis, Korsakoff's psychosis, and Huntington's chorea gave a positive Phase 1.

Dr. Louis C. Ager: As to the action of thyroid extract in checking the secretion of cerebrospinal fluid, a case that recently came under observation is of interest. This child, 8 months old, had an attack of cerebrospinal meningitis from which he recovered under the Flexner treatment. Two weeks later he began to show symptoms of cerebral irritation and a bulging fontanel. Thyroid extract was given by the mouth, beginning with ¼ grain twice a day, increased in a few days to 2½ grains a day. There was a very pronounced improvement almost at once, but it was merely temporary. In a few weeks the pressure again returned, and the circumference of the head increased 5 cm. in eight weeks. Practically no fluid could be obtained on spinal puncture. The child died during an attempt to tap the ventricles.

Dr. Isador Abrahamson: While three factors are concerned in the production of internal hydrocephalus, faulty absorption, in my experience, has been the most important factor. Most often in increased intracranial pressure there is a free communication between the cranial and spinal cavities, the intraspinal pressure being directly proportionate to the intracranial, and here naturally obstruction as a factor is out of question. Secretory faults can also be excluded in most of these cases.

Dr. Foster Kennedy: Potentially the cerebrospinal fluid has a high nutritive value. Except in cases of prolonged diarrhea and vomiting in infants, and complete inanition in adults, I have never seen such extraordinary marasmatic conditions as follow the prolonged loss of the cerebrospinal fluid. Dr. Frazier finds that the administration of thyroid gland is capable of producing a reduction in the quantity of cerebrospinal fluid to one-third the normal flow. A non-alcoholic extract of the gland has been capable in animals and in one human patient of curing hydrocephalus due to an increased fluid production.

Dr. Charles Frazier, Philadelphia: Of particular interest is the problem of producing an artificial hydrocephalus by the injection of choroid plexus. It is not possible to speak in figures as to the relative frequency of the various types of hydrocephalus, according to the classification given, although it seems that the cases of the purely obstructive type are in the minority.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting held Feb. 3, 1915

The President, Dr. James C. Wilson, in the Chair

Study of the Comparative Toxicity of the Various Mercurial Preparations

Dr. J. F. Schamberg, Dr. J. A. Kolmer and Mr. R. W. Raizies: The toxicity of the various mercurial salts is directly proportionate to the amount of pure mercury contained. The inorganic salts, represented by the bichlorid, are no more toxic than the numerous organic combinations commonly employed. The differences in the molecular structure of the mercury compounds tested by us were found to be of relatively little importance as affecting their toxicity. The bichlorid of mercury was fatal on the average in intravenous doses above 2 mg. per kilo of body weight; administered intramuscularly it was fatal on the average above 6 mg. per kilo of body weight. The average relationship as to the toxicity between the intravenous and intramuscular administration of mercury was 4:1. The insoluble preparations, such as gray oil, calomel and the salicylate of mercury are absorbed at the rate of a little over 1 per cent. of the injected amount per day. Even at the end of six or seven weeks, almost 50 per cent. of the mercury of insoluble preparations may be unabsorbed at the site of the injection. The injection of the usual doses of insoluble mercurial compounds at weekly intervals must invariably lead to accumulation of the drug in the tissues. Insoluble mercurial injections should be given only by the skilled physician after careful consideration of the dose and of intervals of administration.

Mercury has a great affinity for the cells of the kidney and this organ is one of the earliest involved in mercurial intoxication. Hence, during the intensive treatment with mercury the necessity of careful examination of the urine from time to time should be emphasized.

DISCUSSION

Dr. H. A. Hare: The mercurials are dangerous in the acute and subacute types of nephritis, to such an extent that for many years I have always, after administering mercurials except small doses of calomel followed the dosage by salines, sweeping them out. I have always had the urine examined microscopically and if red-blood cells were present or there was the slightest evidence of acute lesions in any part of the kidney I put mercury aside with even greater rigor than I would put arsenic aside if some such combination of drugs had been suggested for the case. This point was particularly impressed on my mind by a case of syphilitic nephritis, due to virulent syphilitic infection, in which the patient suffered from hematuria and in which the history was that on three occasions when given mercurial injections the hematuria greatly increased and the man suffered great pain over the kidneys. The so-called cumulative effect of mercury, also does not receive the attention it should. In view of the exceedingly slow progress of its elimination from the body proportionate caution should be observed in its employment.

Dr. Robert N. Willson: It may be of interest to cite two cases of uremia occurring in the course of chronic interstitial nephritis, and both resulting from the administration of about 2 grains of calomel. One patient died in uremia. The other recovered from a fully developed state of uremia. A third patient with pericarditis received by error 64 grains of calomel within three days. He died, and microscopic sections from his kidneys showed the typical *verkalkte Niere* of the Germans. I have a large number of specimens made in Vienna from kidneys of patients treated in the luetic wards with mercury, all of which show the same type of kidney. Recently I saw a young woman who presented a curious combination of cardiac and neurasthenic symptoms, but whose apparently normal kidneys functionated perfectly as far as we could determine. Shortly after the administration of a small dose of calomel she vomited, the urinary flow ceased, she went into uremia, and died.

Dr. David Riesman: Does a soluble preparation injected into the tissues become an insoluble preparation?

Dr. James M. Anders: Can Dr. Schamberg recommend any special preparation of mercury for hypodermatic use? I have been in the habit of employing the salicylate hypodermically, with, as I have had reason to believe, excellent results, although in some cases inunctions gave even better results. What would be the proper interval between the injections in view of the cumulative effects of the drug?

Dr. J. F. Schamberg: The injection of a soluble salt of mercury into the tissues would doubtless lead to the formation of an insoluble compound; but this must be more or less rapidly reconverted into a soluble combination, else it could not be carried through the blood stream, influence the tissues therapeutically, and be eliminated through the kidneys. It must in the end become soluble, no matter what the primary local change is. I believe that inunctions constitute the safest method of employing mercury in massive doses. Professor Welander of Stockholm claims that much of the effect of mercurial inunctions is due to absorption of the mercury by the lungs; that there is a volatilization from the skin, with inspiration through the respiratory tract. Insoluble mercury compounds ought never to be injected oftener than once a week; if the dose is large, not oftener than every two weeks. Careful examination of the urine should be made from time to time. In rabbits that received daily intramuscular injections of mercury over a period of forty-eight days, the kidneys showed microscopic pathologic changes after necrospy, although during life albumin was only irregularly present in the urine. Mercury is a powerful kidney irritant. The two organs for which mercury has the greatest selective affinity are the liver and the kidneys. This is not necessarily because it is eliminated through these organs, but because it is powerfully renotropic. Some years ago I saw a patient who received mercury by inunction, by injection and by mouth at the same time for a supposedly luetic eruption. She developed a severe nephritis with anasarca and she continued to eliminate the drug for 127 days after the last dose of mercury had been ingested.

Case of Hour-Glass Stomach

DR. H. A. HARE and DR. J. CHALMERS DACOSTA: The patient was a man of about 48 or 50 years of age who suffered from severe pain in the upper zone of the abdomen. The diagnosis was obscure on whether the condition was a malignant growth or ulcer. The roentgenogram showed a very extraordinary manifestation of hour-glass stomach. It is difficult to conceive of a deformity greater than the one shown which could be produced by disease. Dr. DaCosta ignored the fibrous band which represented the annular constriction, and bridged the space between the upper and lower parts of the stomach by anastomosis. The man died three or four days following operation from pneumonia at the base of the lung on the side of operation.

Physiologic Characteristics in Insanity. The Thymus and the Pituitary in Dementia Praecox

DR. S. D. W. LUDLUM: *In a group of cases of dementia* praecox Abderhalden reactions were obtained, in some cases to testicle and pancreas, in others to testes and thyroid, while in others no reactions were obtained. In the individuals who gave the reaction to testes and pancreas the following physiologic symptoms were observed: Leukopenia in exacerbations, leukocytosis in improvement, increased blood pressure, pulse feeble and rapid, temperature, 2 degrees above normal, exaggerated knee jerks, diminished cutaneous reflexes, increased electric reactions of muscle, tremor of tongue and extremities, increased weight, later loss of appetite, Westphalz Pilez pupillary sign, nutritional variations, temporary spastic legs, increased mechanical irritability of muscles. These symptoms are comparable to those obtained in animals after thymusectomy. In the schemata of interrelationships of glands of internal secretions the overactivity to testes and pancreas is consistent with underactivity of thymus; also the thymus of a dog whose thymus had been removed gave positive Abderhalden reactions to testes and pancreas. Several cases of this type were cured with thymus extract. The majority of those cases which gave no Abderhalden reaction had the physiologic and morphologic characteristics of dyspituitarism and improved with pituitary extract. Those cases giving the reaction to testes and thyroid were of the catatonic type. In addition to these forms there is a hyperpituitary mental disturbance which has its prototype in a mentally retarded girl of 5 years who has the stature of 8 years of age. Her serum reacts only to the pituitary gland and she represents the beginning of gigantism. The prototype is followed by cases in adults who exhibited unusually large skeleton growths and reversal of sexual characteristics with the mental symptoms of hypomania. The treatment of these cases can be successfully carried out if the case is sufficiently studied.

The Scholar's Leadership.—The true scholar is probably not aware that he is exercising any leadership, for he is not a conscious leader. He is not the self-constituted head of a so-called school, for that suggests a too close adhesion to unproved doctrines, and is not infrequently exploited for personal and national aggrandizement. He is content with placing his work on record and leaving it to its fate. The true scholar is not a partisan or advocate because the two or more sides presented by every question for due consideration are quickly detected by his periscopic vision, and he may see little to choose between them. He may at times become partisan to restore an upset equilibrium between contesting sides so that the actual facts may come into better view. —Theobald Smith: *Boston Med. and Surg. Jour.*

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

January, LXXI, No. 3, pp. 439-683

1 Rôle of Psychiatric Dispensary: Review of First Year's Work of Dispensary of Phipp's Psychiatric Clinic. C. M. Campbell, Baltimore.
2 Five Cases of Intracranial Injection of Autoserum Salvarsan. D. M. Wardner, Cedar Grove, N. J.
3 Insanity in Children. J. H. W. Rhein, Philadelphia.
4 *Epileptic Dementia. A. Gordon, Philadelphia.
5 Expert Testimony by Alienists and Neurologists. C. A. Porteous and H. V. Robinson, Montreal, Canada.
6 Modern Treatment of Inebriety. I. H. Neff, Foxborough, Mass.
7 Prevention of Suicide. T. A. Williams, Washington, D. C.
8 Present Status of Application of Abderhalden Dialysis Method to Psychiatry. S. T. Orton, Philadelphia.
9 *Case of Chronic Progressive Chorea. J. A. F. Pfeiffer, Washington, D. C.
10 *Topographic Distribution of Cortex Lesions and Anomalies in Dementia Praecox, with Some Account of Their Functional Significance. E. E. Southard, Boston.

4. **Epileptic Dementia.**—According to Gordon normal intellectual faculties may coexist with epilepsy, provided the latter is not frequent. Should epilepsy become frequent, it eventually exercises a destructive influence on the mind. The latter consists of retrogression of intellectual power, namely, a gradual, progressive feebleness of intellect, leading to dementia. Epileptic dementia may develop at any age. Should epilepsy appear at the age of adolescence, the dementia assumes the clinical picture of dementia praecox. When epilepsy develops in an adult, the dementia may resemble that of paresis. If an elderly person suffers from epileptic seizures, his mental condition may simulate senile dementia. A thorough analysis of all such cases will reveal the fact that the resemblance to the above diseases is not a profound one; the individual characteristics of epileptics which are invariably present will soon enable one to ascertain the true nature of epileptic dementia. The majority of epileptic dements present family antecedents of a neuropathic nature.

9. **Case of Chronic Progressive Chorea.**—From an exhaustive anatomic study in the case reported, Pfeiffer concludes that the involuntary movements in this disease probably result from a primary degeneration of the neurons in the nucleus ruber, the lateral nucleus of the optic thalamus and the lenticulate nucleus, thus interfering with the conductive integrity of the cerebello-thalamo-rubro-cortical path. As regards the brain and spinal cord, the motor cells were well preserved, and the cellular changes present were of a character similar to those encountered in conditions unassociated with choreiform movements. The pyramidal system was intact and no systematized fiber degeneration could be detected in the spinal cord.

10. **Cortex Lesions in Dementia Praecox.**—In summing up this lengthy and detailed study Southard calls especial attention to the following points: (1) The constancy of mild general or focal atrophies in cases lasting long enough to yield these; (2) the tendency to an exhibition of lesions somewhat more markedly in the left hemisphere; (3) the preference of the lesions for the "association centers" of Flechsig; (4) the high correlation of auditory hallucinosis and temporal-lobe lesions, as also (5) of catatonia and parietal lesions (*cerea flexibilitas*, especially postcentral), and (6) of the more frequent form of delusions and frontal-lobe disease; (7) the possible existence of a hyperphantasia group with parietal correlations, and of (8) a large internal hydrocephalus group with catatonic and hallucinotic correlations rather than delusional.

American Journal of Medical Sciences, Philadelphia

February, CXLIX, No. 2, pp. 157-312

11 *New Uses of Specific Skin Tests in Certain of Infectious Diseases. F. P. Gay, Berkeley, Cal.
12 Indications for Artificial Nutrition. M. Einhorn, New York.

13 Continuous Clonic Spasm of Left Arm (Epilepsia Continua) Caused by Tumor of Brain. C. W. Burr, Philadelphia.
14 *Pulsus Alternans. H. C. Gordinier, New York.
15 *What Facts of Diagnostic or Prognostic Value Can Be Determined from Test-Meal Examination of Patients with Gastric Symptoms? F. Smithies, Chicago.
16 *Presence of Continued High Temperature in Malignant Tumors. J. Phillips, Cleveland.
17 *Vasomotor Mechanism in Pneumonia. L. H. Newburgh, Boston.
18 *Vasomotor and Trophic Disturbances of Upper Extremities; with Particular Reference to Thrombo-Angeitis Obliterans. L. Buerger, New York.
19 Importance of Paranasal Sinuses in Explanation of Pain in Face, Head, Neck and Shoulders. M. A. Bliss, St. Louis.
20 Functional Tests in Experimental Tartrate Nephritis. A. C. Potter and E. T. Bell, Minneapolis.
21 *Treatment of Cerebrospinal Syphilis by Intraspinous Injections of Salvarsanized Serum. A. G. Rytina and C. C. W. Judd, Maryland.
22 *Concentration of Blood Sugar in Health and Disease as Determined by Bang's Micromethod. A. H. Hopkins, Philadelphia.
23 Extraphysiologic or Putrefactive Urea. G. D. Palacios, Venezuela.

11. **Skin Tests in Certain Infectious Diseases.**—Gay shows that in streptotrichosis the skin test serves to differentiate closely related infections, and in the case of rabbits immunized against vaccine virus it may be used indirectly to diagnose human smallpox. In the case of the Schick reaction with diphtheria toxin and the typhoidin reaction of Gay and Force, local tests indicate protection or lack of protection against the disease in question and therefore indicate when immunization is necessary. The accelerated vaccine reaction of Jenner and v. Pirquet becomes of value as indicating protection against smallpox and the fruitlessness of further attempts at producing vaccinia.

14. **Pulsus Alternans.**—Gordinier agrees with Mackenzie and Windle in giving pulsus alternans the third place among pulse irregularities, extrasystoles being placed first and the persistent irregularity of auricular fibrillation the second. Clinical alternation is frequently overlooked because it cannot be recognized without the graphic registration of the pulse. Its presence is positive evidence of defects of the function of contractility, this in turn being due to temporary or permanent myocardial changes. From a prognostic standpoint the presence of pulsus alternans, save the temporary form, due to great rapidity of rate, is grave, as it indicates extensive myocardial degeneration, most patients dying from cardiac insufficiency within three years of its onset. Extrasystoles, invariably followed by alternations, also indicate exhaustion of contractility and carry with them a grave prognosis. Persistent false bradycardia, due to feeble systoles, in which the deficit between the apex beat and the pulse rate is but little altered by the exhibition of cardiac tonics, such as digitalis or strophanthus, also indicate grave defects of contractility, with extensive myocardial degeneration and unfavorable prognosis.

15. **Value of Test-Meal Examination in Gastric Symptoms.**—Benign gastric retention (usually ulcer): In 89 per cent. of cases of this type the presence of large numbers of actively budding yeasts, associated with large and small sarcina and bacilli, apparently of the colon group, and food bits were demonstrated by Smithies. The gastric acidity was generally above 50. Gastric cancer. In 93.8 per cent. of his proved, late, malignant cases, organisms of the Boas-Oppler group, associated with food retention and acid averaging below 10, was a characteristic picture. In but 30 per cent. of instances were budding yeasts concomitant. In but 10 per cent. were sarcina associated. Threads of streptococci were found in 6.2 per cent. (more commonly in the non-retention group). There is no characteristic microscopic picture of early gastric cancer other than that associated with gastric ulcer of the retention type. In less than 1 per cent. of cases of gastric cancer was Smithies able to demonstrate so-called "cancer cells" with active mitoses. These were all late cases or cases in which the cardiac orifice was involved with a sloughing growth. Achylia gastrica: Primary or secondary. In gastric extracts of low or absent hydrochloric acid, when there is atrophy of the mucosa and cases in which motility is not interfered with, there are found long chains of streptococci (resembling beads or a rosary); groups of large, deep-staining cocci, and a peculiar, short, fat, acid-fast rod or coccobacillus that grows in short chains or pairs, or alone. When perforation into an adjacent viscus has taken place in malignant ulcer or primary cancer, or in cases in which obstruction has occurred below the duodenum, the picture of immense numbers of thick coccobacilli, with or without spirilla or streptococci, in association with low acidity, retarded food progress and putrefaction, as evidenced by the odor is shown in more than 94 per cent. of instances.

16. **High Temperature in Malignant Tumors.**—It seems to Phillips that the most reasonable explanation of the fever is that because of the constant degeneration of tumor tissues, products of autolysis are formed which enter the circulation in small quantities, producing systemic disturbances, such as fever. However, though this seems very probable, no such substances have been isolated nor has their presence been demonstrated.

17. **Vasomotor Mechanism in Pneumonia.**—Two main arguments are offered in support of the hypothesis that the peripheral circulation is paralyzed in pneumonia. The first argument is based on the assumption that the blood pressure is abnormally low in fatal pneumonia. It has been shown that this assumption is incorrect. The second argument is that the vasomotor reflexes are absent in fatal pneumococcus septicemia. This has been disproved by positive data showing that the vasomotor reflexes are normal in fatal pneumonia. Newburgh believes that the conclusion that the vasomotor apparatus is not impaired in pneumonia is fully warranted.

18. **Vasomotor and Trophic Disturbances of Arms.**—In thrombo-angeitis obliterans Buerger states that a definite and specific morphologic change in the arteries and veins is responsible for the varied phenomena in the superficial capillaries. In Raynaud's and allied diseases the vasomotor and trophic disturbances are the outcome of irritative and exhaustive processes of the sympathetic nervous system.

21. **Injection of Salvarsanized Serum in Cerebrospinal Syphilis.**—Intraspinous injection of salvarsanized serum, with proper precautions is held to be a safe treatment by Rytina and Judd. The results obtained indicate its superiority over the older known methods. They urge that treatment must be persisted in until the laboratory findings are negative, irrespective of the clinical progress observed. The permanency of the improvement still has to be determined.

22. **Blood Sugar in Health and Disease.**—According to Hopkins in health a moderate rise in blood sugar (0.14 to 0.15 per cent.) occurs after feeding 100 gm. of glucose, reaching its height in from one-half to two hours and quickly subsiding. There is no constant blood sugar level at which sugar appears in the urine. Evidently absorption after rectal and subcutaneous injection is slower than after feeding by mouth; however, owing to the discomfort produced by the former methods this series is too limited to permit of definite conclusions in regard to this point. In cases in which a disturbance in carbohydrate metabolism exists there may be a normal sugar concentration associated with a most pronounced alimentary hyperglycemia. In diabetes, alimentary hyperglycemia is pronounced, the height of the sugar level appearing at any time from one-half to three hours after the ingestion of glucose, and the duration being more prolonged than in other conditions. Pancreatic, nephritic and pituitary cases all furnish very high figures after feeding glucose, the duration lying between that of normal and of diabetic patients.

A moderate hyperglycemia occurs in many high pressure nephritic cases, and frequently in those with low phthalein elimination. In most cases of nephritis without high pressure the blood sugar is normal. Edema and hepatic congestion do not influence blood sugar values, though the rôle they may play in alimentary hyperglycemia, which is pronounced in nephritis, Hopkins says, he is not prepared to say at this time. A rise in blood sugar occurs in pneumonia and may be present in the absence of fever. It is apparently uninfluenced by blood pressure, leukocytosis, or renal involvement. Hyperglycemia occurs quite constantly in apoplexy, typhoid, and tuberculosis in the presence of fever and in some cases of cancer. The test, owing to its simplicity and accuracy, affords a practical method for early diagnosis and control of dietary therapeusis.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

February, II, No. 8, pp. 489-552

24 Filterability and Biology of Spirochetes. S. B. Wolbach, Boston.
25 Action of Light on Protoplasm. W. T. Bovie, Boston.
26 *Sparganum Mansoni. First Reported American Case. J. T. Moore, Houston, Tex.
27 *Treatment of Ground Itch. N. Barlow, Guyamel, Spanish Honduras.
28 Case of Uta Venomosa. W. F. Bailey, Cerro de Paseo, Peru.

26. **Sparganum Mansoni.**—This larval cestode was discovered by Moore in a mass or tumor removed by him from the breast of a man aged 47.

27. **Treatment of Ground-Itch.**—The treatment emphasized by Barlow consists in the application of a solution of 3 per cent. salicylic acid in ethyl alcohol. Pledgets of cotton are soaked in the solution, applied to the affected areas, and left in place five minutes. The treatment is repeated twice daily. Cases of ground-itch uncomplicated with secondary infection are relieved immediately, and entirely cured in from two to four days.

Annals of Ophthalmology, St. Louis

January, XXIV, No. 1, pp. 1-216

29 Pathology of Corneal Section and Its Complications in Cataract Extraction. F. Tooke, Montreal, Canada.
30 Contraction of Frontalis in Abduction of Eyeball. W. Zentmayer, Philadelphia.
31 Present Knowledge of Focal Localization Along Visual Paths. C. Barck, St. Louis.
32 Intra-Ocular Sarcoma. Report of Case of Spontaneous Rupture of Globe. W. B. Weidler, New York.
33 Curvature and Index Myopia. Report of Cases. A. E. Davis, New York.
34 Case of Persistent Ring Scotoma Following Repeated and Prolonged Gazing at Furnace Fire. J. H. Claiborne, New York.
35 Case of Complete Sclerosis of Retinal Circulation. W. Zentmayer, Philadelphia.

Arkansas State Medical Society Journal, Little Rock

February, XI, No. 9, pp. 207-230

36 Mucous Colitis. T. Douglass, Ozark.
37 Diagnosis. T. F. Kittrell, Texarkana.
38 Purpura. Report of Cases. J. Chesnutt, Hot Springs.

Archives of Internal Medicine, Chicago

February, XV, No. 2, pp. 181-340

39 Action of Atophan and Novatophan in Gout and Iritis. C. A. Smith and P. B. Hawk, Philadelphia.
40 Radio-Activity of Mineral Waters of Hot Springs, Warm Springs and Healing Springs in Hot Springs, Va. J. C. Hemmeter and E. Zueblin, Baltimore.
41 *Different Nitrogenous Diets in Chronic Nephritis. C. Frothingham, Jr., and W. G. Smillie, Boston.
42 *Case of Congenital Hemolytic Jaundice with Splenomegaly. J. P. McKelvy and J. Rosenbloom, Pittsburgh.
43 *Functional Changes in Experimental Hydronephrosis. N. M. Keith and R. R. Snowden, Baltimore.
44 Employment of Specific and Non-Specific Antigens in Performance of Gonococci Complement-Fixation Test. B. A. Thomas, R. H. Ivy and J. C. Birdsall, Philadelphia.
45 *How Shall We Tell Whether or Not Myocardium Is Competent? J. M. Swan, Rochester, N. Y.
46 *Therapeutic Action of Iodin. J. W. Jobling and W. Petersen, New York.
47 Renal Function in Acute Experimental Unilateral Nephritis. W. C. Quinby and R. Fitz, Boston.
48 *Studies in Paroxysmal Edema. W. W. Palmer, Boston.

41. **Different Nitrogenous Diets in Chronic Nephritis.**—Attention is directed by Frothingham and Smillie to the fact that in certain types of chronic nephritis the nitrogenous content of the diet should be carefully watched in order to prevent an increase in non-protein nitrogen in the blood. The exact effect of an increase in blood nitrogen produced by a high nitrogenous diet is not known at present, but presumably it is unfavorable to the best interests of the patient, since in some it increases their discomfort. A diet low in nitrogen content will frequently keep down to normal the non-protein nitrogen of the blood in chronic nephritis.

42. **Case of Congenital Hemolytic Jaundice with Splenomegaly.**—A case of congenital hemolytic jaundice with splenomegaly and increased fragility of the red cells is described by McKelvy and Rosenbloom together with a metabolism experiment. In a metabolism experiment of five days, there was a loss of 4.06 gm. of nitrogen, while the urinary nitrogen partition is normal in character with the exception of the uric-acid nitrogen, which is increased. The absorption of nitrogen was normal. The urinary sulphur partition is normal in character with occasional increased excretions of ethereal sulphates. In the five days there was a loss of 1.88 gm. of sulphur. In the five days there was a loss of 0.482 gm. of calcium oxid and 0.924 gm. of magnesium oxid. There was a phosphorus retention of 0.07 gm., while the amounts of earthy phosphates and total phosphates may be considered normal. There was a loss of 0.1199 gm. of iron in the five days, with marked increased amounts of iron excreted in the urine and feces. The fat metabolism was normal, with an absorption of about 91 per cent. of the ingested fat. The amounts of neutral fat, fatty acids and soaps in the stool were normal. Urobilin and urobilinogen were present in the urine and feces. Bilirubin and hemoglobin were absent from the urine and feces.

43. **Functional Changes in Experimental Hydronephrosis.**—A study of the functional changes that occur from day to day in an animal when the only deviation from normal is an increased intra-ureteral pressure is presented by Keith and Snowden. They found that an incomplete ureteral obstruction in dogs, causing a back pressure of from 12 to 30 cm. of water, results in the development of a hydronephrosis. This hydronephrosis causes a definite disturbance of renal function, characterized by polyuria, traces of albumin, diminished output of phenolsulphonephthalein and delayed excretion of lactose. There is no delay in the appearance of a glycosuria after the injection of phloridzin. When one kidney is removed from an animal and the foregoing functional changes are brought about in the remaining organ, by the production of a hydronephrosis, the non-protein nitrogen content of the blood rises, and remains at this increased level (with slight variations) for a considerable period of time, unassociated with toxic symptoms. This gives place to a sudden, severe, renal insufficiency, rapidly fatal, and characterized by marked toxemia, great increase in nitrogen content of the blood and very low phenolsulphonephthalein output. During this final stage of renal insufficiency, caused by back pressure alone, or by back pressure with superimposed infection, there is a true nitrogen retention. Under the conditions established in these experiments the occurrence of pyelonephritis is only a question of time; the animals which came to necropsy within ten days of the operation showed no signs of infection.

45. **How Shall We Tell Whether or Not Myocardium is Competent?**—Swan has compared the variations in the pulse rate in the recumbent and in the erect posture, the cardiac efficiency factor of Tigerstedt, the percentage of the pulse pressure formed by the second phase of the auscultatory blood pressure reading, the C. S.: C. W. (cardiac strength and cardiac weakness) ratio of Goodman and Howell and the cardiac overload factor of Stone in ten fatal cases of cardiac and cardiorenal disease; in seven cases of compensated cardiac disease; in six cases of cardiac decompensation which subsequently had compensation restored; in eight cases of chronic interstitial nephritis in which the patients are still living, and in nine cases of various diseases in which the functional capacity of the myocardium was of importance in prognosis.

Briefly, he believes as a result of his study that all four of these factors have some value in determining the efficiency of the myocardium. He is inclined to think at present that the cardiac efficiency factor of Tigerstedt, and the percentage of the pressure formed by the second phase, are the most important. A cardiac efficiency factor of 40 per cent. or over would seem to point out distinct myocardial inefficiency. A second phase of 30 per cent. or under would seem to indicate the same condition.

The C. S.: C. W. ratio is less important because it so often cannot be determined; and again, because a small second phase is very frequently made up by a large third phase.

On the other hand, a C. S.: C. W. ratio in which the C. W. factor is greater than the C. S. factor is indicative of disturbance of the myocardium, functional if not organic. The overload factor of Stone is indicative more of peripheral resistance than of myocardial weakness. A cardiac load below 50 per cent., as determined by this method, giving a negative overload may have some significance; but it will require further study to determine its nature.

46. **Therapeutic Action of Iodin.**—According to Jobling and Petersen iodin neutralizes the action of the agents which prevent solution and absorption of necrotic tissue, and at the same time lays bare to the action of the real germicidal agent the infecting organism which previously had been protected by the necrotic tissue. With the exposure of the infecting organism, such agents as mercury and salvarsan would be much more effective.

48. **Studies in Paroxysmal Edema.**—Two cases are cited by Palmer which illustrate the well-known relation between sodium chlorid and edema, and suggest a possible explanation in some cases of edema of obscure cause. The impermeability to salt on the part of the kidney is an important factor. Attention is called to the bowel as a vehicle for the excretion of salt. This fact is important in the treatment of cases with edema of obscure origin. Palmer says that in certain types of edema there may exist mild grades of acidosis which may play some rôle in the persistence of the condition.

Boston Medical and Surgical Journal

February 25, CLXXII, No. 8, pp. 285-320

49 *Experimental Use of Magnetism for Locating Needles in Tissues. G. H. Monks, Boston.
50 Study of Disturbances of Stomach. H. F. Hewes, Boston.
51 Plastic Surgery in Procidentia. Report of Twenty-Five Cases. F. W. Duckering, Boston.
52 Diverticulum of Bladder. H. Cabot, Boston.
53 Thackeray's Physicians. W. P. Coues, Boston.

49. **Use of Magnetism for Locating Needles in Tissues.**—The procedure devised by Monks is as follows: The buried needle is magnetized by passing a magnet over the locality in which this needle is supposed to be. The best results are obtained when the long axis of the magnet is in the same line as the axis of the needle. The examining needle (magnetized and suspended in the middle from a fine silk thread) is then slowly passed over the same locality. In the event that it passes over the buried needle, provided that needle is not too far away from the surface—one end or the other of the examining needle will be attracted and will dip in the direction of the buried needle. Monks has not had the opportunity of trying this method on the living subject, but has used it successfully under many different conditions. Magnetizing a fragment of a needle through glass, wood, felt and various other substances of different thicknesses up to one-half inch and even occasionally more. He has also on several occasions, found a needle through an incision into a piece of meat, the needle having previously been hidden in the meat by another person without his knowing its position.

Bulletin of Johns Hopkins Hospital, Baltimore

February, XXVI, No. 288, pp. 37-68

54 *Hypersensitiveness to Pneumococcus Protein, with Special Reference to Its Relation to Immunity. P. W. Clough, Baltimore.
55 *Recognition of Atypical Forms of Intestinal Amebiasis. A. W. Sellards and W. A. Baetjer, Baltimore.
56 *Experiences with Phenolsulphonephthalein Method of Testing Function of Kidney. O. Hess.

54. **Hypersensitiveness to Pneumococcus Protein.**—By means of a slight modification of Besredka's method, a "protein" extract was obtained by Clough from pneumococci which would sensitize normal guinea pigs, and which would specifically intoxicate suitable sensitized guinea pigs. But it was not found possible to prepare extracts in this way which uniformly caused acute fatal reactions in sensitized animals. There is quantitatively a certain degree of specificity in the reactions of suitably sensitized animals to extracts of pneumococcus and *Streptococcus viridans;* probably also in reactions to these extracts and to extracts of *Streptococcus pyogenes;* but this specificity is not absolute. Guinea pigs sensitized with extracts of pneumococci showed inconstantly a very slight grade of immunity to infection with living, virulent cultures. Animals highly immunized by repeated subcutaneous injections of living virulent cultures showed also a marked degree of hypersensitiveness to pneumococcus extracts. It was not possible to demonstrate a condition of hypersensitiveness to pneumococcus "protein" in patients with pneumonia by the local application of a solution of the protein to the conjunctiva or by intracutaneous injections.

55. **Recognition of Atypical Forms of Intestinal Amebiasis.**—In the diagnosis of amebic dysentery it is ordinarily considered essential that the presence of *E. histolytica* be demonstrated in association with definite clinical symptoms. In three cases of obscure diarrhea seen by the authors it was found that ameba were present in the intestine, which could not be identified morphologically with either *E. histolytica* or *E. coli.* Animal inoculation proved that these ameba were definitely pathogenic, the symptoms which characterized the disease in the patient appearing in the animals. After a careful consideration of the various factors involved in these cases they feel that it is necessary to diagnose amebic dysentery (intestinal amebiasis) under conditions in which the clinical symptoms are distinctly atypical and the ameba present vary markedly in their morphology from *E. histolytica.* Indeed, amebic dysentery must sometimes be diagnosed in the absence of trophozoites and when only two and three nucleated cysts are present. A diagnosis under such conditions should be confirmed by the inoculation of animals.

As regards the systematic position of these strains and their relation to histolytica, definite evidence was obtained that the amount of chromatin which characterizes the nucleus of *E. histolytica* may undergo fairly marked variation. Also the number of nuclei in the propagative stage has always been considered as being sufficiently constant to furnish a satisfactory basis for the differentiation of species. In these strains marked variation occurred in the number of nuclei in the cysts, sometimes only two and three being found and under other conditions four and often five or six nuclei. Consequently Sellards and Baetjer prefer to regard the strains of ameba occurring in these cases, not as a new variety but as an atypical histolytica temporarily modified by environment.

56. **Use of Phenolsulphonephthalein in Testing Function of Kidney.**—Hess' cases of unilateral renal disease, nephrolithiasis, pyonephrosis, etc., some of them confirmed by operation, show that the phenolsulphonephthalein test is valuable for determining the amount of work each kidney is capable of doing. It is superior to other color tests in the accuracy of the information it yields. The result of the phenolsulphonephthalein test shows how much of the parenchyma is involved, and is of much value in the differential diagnosis of doubtful renal tumors. Although there may be some cases with severe clinical symptoms in which the test unexpectedly shows good renal function, Hess believes, we are nevertheless justified in concluding that the phenolsulphonephthalein test surpasses all other similar methods by its simplicity. It can be applied immediately without any dietary preparation, and can be used in all cases, even uremic conditions. The result is rapidly obtained, and is of value both for diagnosis and prognosis.

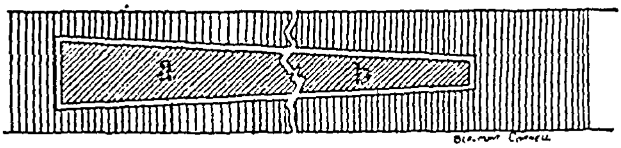
Canadian Medical Association Journal, Toronto

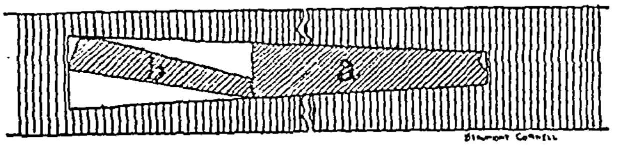
February, V, No. 2, pp. 85-180

57 Acute Abdomen. J. M. Elder, Montreal.
58 Diagnosis and Treatment of Gastric and Duodenal Ulcers. M. Einhorn, New York.
59 Use of Bone Graft in Surgery. W. G. Turner, Montreal.
60 *Bone Wedging—Method of Eliminating Introduction of Foreign Materials in Open Operations on Fractures. W. E. Gallie, Toronto.
61 Early Diagnosis of Tuberculosis. D. Townsend, River Glade, New Brunswick.
62 Septic Thrombophlebitis of Portal Vein, Complicating Gangrenous Appendicitis. B. H. Champion and J. J. Mason, Vancouver.

60. **Bone Wedging.**—Through a free incision Gallie exposes the ends of the fragments and with the aid of Lane's bone forceps, the fracture is reduced. While an assistant holds the bones in correct attitude, the surgeon applies a motor

saw to the fragments, cutting out two pieces, as shown in the accompanying diagram. Each piece is wedge-shaped and the planes of the sides are perfectly parallel. The piece A is now driven solidly into the space left by the removal of B, and owing to its tapering shape, it wedges itself solidly into both fragments and thus dove tails the fracture together. The piece B is then dropped in behind A to assist in holding it in place. This is not an intramedullary splint, as the operation, to be successful, requires the hard bone of the cortex to hold the wedge properly. The incision is closed in the usual way with catgut and horse hair and a plaster spica applied. This operation has been performed by Gallie on six occasions and so far has been quite successful.





Colorado Medicine, Denver

February, XII, No. 2, pp. 33-64

63 Anemia, Dominant Constitutional Disorder of Colorado. H. Sewall, Denver.
64 Relation of Tubercle Bacilluria to Pulmonary Tuberculosis. O. S. Fowler and J. A. Philpott, Denver.
65 Neurology of Epidemic or Acute Anterior Poliomyelitis. G. A. Moleen, Denver.
66 Prophylaxis and Orthopedic Management of Anterior Poliomyelitis. S. F. Jones, Denver.

Delaware Medical Journal, Wilmington

December, VI, No. 1, 1-26

67 Cases Treated by Physical Therapeutics. W. Marshall, Jr., Milford.

Florida Medical Association Journal, Jacksonville

February, I, No. 8, pp. 225-256

68 Roentgen Rays in Treatment of Cancer. J. D. MacRae, Tampa.
69 Intestinal Resection Without Anesthesia. R. C. Turck, Jacksonville.
70 Syphilis of Oral Cavity. W. P. Dey, Jacksonville.
71 Rôle of Pyorrhea in Etiology of Nervous and Mental Diseases. J. H. Randolph, Jacksonville.

Journal of Biological Chemistry, Baltimore

February, XX, No. 2, pp. 97-174

72 *Improved Method for Estimation of Inorganic Phosphoric Acid in Certain Tissues and Food Products. R. M. Chapin and W. C. Powick, Washington, D. C.
73 *Size and Composition of Thymus Gland. F. Fenger, Chicago.
74 Influence of Diet of Marine Algae on Iodin Content of Sheep's Thyroid. A. Hunter and S. Simpson, Ithaca, N. Y.
75 Distribution of Mercury in Body in Case of Acute Bichlorid of Mercury Poisoning. J. Rosenbloom, Pittsburgh.
76 *Estimation of Benzoic Acid in Urine. G. W. Raiziss and H. Dubin, Philadelphia.
77 *Theory of Diabetes. IV. Parallelism Between Effects of Pancreas and Those of Metallic Hydroxids on Sugars. R. T. Woodyatt, Chicago.
78 Condition of Casein and Salts in Milk. L. L. Van Slyke and A. W. Bosworth, Geneva, N. Y.
79 Researches on Purines. XVI. Isomeric Monomethyl Derivatives of 2-Methylmercapto-4-Amino-6-Oxypyrimidin. On 1-Methyl-2-Methylmercapto-6, 8-Dioxypurin. C. O. Johns and B. M. Hendrix, New Haven, Conn.
80 Lipins in Nutrition. C. G. MacArthur and C. L. Luckett, Urbana, Ill.

72. Estimation of Inorganic Phosphoric Acid.—An improved method for the determination of inorganic phosphoric acid in tissues has been devised by Chapin and Powick which has the following advantages over the methods customarily used. It does not involve the action of heat or of strong reagents on the organic matter present in the tissue. Bacterial decomposition of the organic matter is prevented by the presence of picric acid, a powerful antiseptic. The precipitation is effected after the removal of the proteid matter, and therefore is not influenced by the protective action of colloids; while contamination with organic compounds of phosphorus is reduced to a minimum. Tedious filtrations are avoided by using an aliquot portion of the filtrate from the picric-acid coagulum for the determination of inorganic phosphoric acid. A rapid and accurate chemical method has been employed for determining the proportional part of the whole solution represented by the aliquot part used. The method described, and its several modifications, have been experimentally tested and found to be rapid and accurate.

73. Size and Composition of Thymus Gland.—Fenger claims that the fetuses and young growing animals contain very much more thymus tissue per unit of body weight than fully mature animals. The fetal thymus is exceptionally rich in blood and contains nuclein bodies and phosphates in amounts equal to those found in the glands from young growing animals, indicating that the gland is active therapeutically at least three months before maturity of the fetus. Thymus glands from full-grown animals also contain nuclein bodies and phosphates, indicating that the gland does not completely cease its systemic activity during the reproductive period of these animals. Adult cattle and sheep (herbivora) contain more thymus tissue per unit of body weight than adult hogs (omnivora).

76. Benzoic Acid in Urine.—The method devised by Raiziss and Dubin is a modification of that proposed by Folin and Flanders for ketchup. The procedure is as follows: One hundred c.c. of fresh urine are pipeted into a 500 c.c. short-stemmed-separatory funnel, and acidified with 1 c.c. of concentrated nitric acid. Enough ammonium sulphate (50 to 60 gm.) to saturate the urine is added, and the benzoic acid is extracted with four portions of pure toluene of 50, 40, 30 and 30 c.c. each, respectively. The combined toluene extracts are then washed twice, using 100 c.c. each time, with saturated sodium chlorid solution, containing in each liter 0.5 c.c. of concentrated hydrochloric acid. The titration is made with N/10 or N/20 sodium alcoholate, using phenolphthalein as an indicator. The end point is a definite pink, lasting two or three minutes.

77. Theory of Diabetes.—The possibility is presented by Woodyatt that between certain breakdown products of fats, protein, and carbohydrates, common dissociation residues or systems of residues may exist which throw these classes of substances into an actual state of organic chemical equilibrium with one another, a conception which bears directly on the nature of the correlation of the ductless glands and in a most tangible manner. This idea also bears on the question of how carbohydrates or fats suppress protein catabolism, etc.

Journal of Sociologic Medicine, Easton, Pa.

February, XVI, No. 1, pp. 1-64

81 Rigidity of Curriculum an Obstacle to Progress of Medical Education. C. McIntire, Easton.
82 How Foods and Drugs Can Menace. W. S. Hall, Chicago.
83 Home Surroundings. T. D. Davis, Pittsburgh.
84 Improper Recreations. S. C. Kingsley, Chicago.

Lancet-Clinic, Cincinnati

February 13, CXIII, No. 7, pp. 169-196

85 Prevalence of Typhoid in Sanitary Survey of Ohio River Cities. W. H. Frost, Cincinnati.
86 Roentgen-Ray Observations Concerning Gastrospasm and Gastric Atony. S. Lange, Cincinnati.
87 *Blood Pressure Readings in Examinations for Life Insurance. J. W. Fisher, Milwaukee, Wis.
88 Series of Gastro-Intestinal Cases. C. P. Kennedy, Cincinnati.
89 Dangers and Fallacies of Intraspinous Injection of Salvarsan. W. Ravine, Cincinnati.

February 20, No. 8, pp. 197-224

90 Management of Hypertensive Cardiovascular Cases. R. H. Babcock, Chicago.
91 Experimental Study in Functional Diagnosis of Heart. C. S. Williamson, Chicago.
92 Intermittent Swelling of Salivary Glands. G. B. Rhodes, Cincinnati.
93 Dangers and Fallacies of Intraspinous Injection of Salvarsan. W. Ravine, Cincinnati.

Medical Record, New York

February 27, LXXXVII, No. 9, pp. 337-378

94 Mentally Defective as Cases in Courts of New York City. M. G. Schlapp and L. S. Hollingworth, New York.
95 Eschylus—Doctor's Study. W. B. Konkle, Montoursville, Pa.
96 What the General Practitioner Should Know About Therapy of Syphilis. A. Rostenberg, New York.
97 Unconscious Mental Phenomena. J. Inglis, Denver.
98 Neglected Field of Medical Culture. T. D. Crothers, Hartford, Conn.
99 Deafness Following Mumps: Report of Case. J. Weinstein, New York.
100 Transfusion of Blood by Gravitation Method. G. A. Rueck, New York.
101 New Incision for Varicocele Operation When Scrotum Is to Be Amputated. E. G. Ballenger and O. F. Elder, Atlanta, Ga.

Missouri State Medical Association Journal, St. Louis

February, XII, No. 2, pp. 45-90

102 *Thyroidectomy Under Local Anesthesia. A. E. Hertzler, Kansas City.
103 Pain and Its Significance. J. H. Elliott, West Plains.
104 Psychoses Associated with Tabes Dorsalis. F. M. Barnes, Jr., St. Louis.
105 Perversions of Consciousness in Mental Diseases. S. A. Johnson, Springfield.
106 Treatment of Neuralgia. G. W. Robinson, Kansas City.
107 Some Factors in Surgery of Stomach and Duodenum. J. G. Sheldon, Kansas City.
108 Squinting Child. W. F. Hardy, St. Louis.
109 *Differential Diagnosis of Tympanites and Pneumoperitonitis. W. W. Duke, Kansas City.
110 *Use of Raw Starch in Treatment of Diabetes Mellitus. E. B. Knerr, Kansas City.

102. **Thyroidectomy Under Local Anesthesia.**—The secret of success in thyroidectomy under local anesthesia, says Hertzler, is that the surgeon must not hurt the patient. The field must be completely anesthetized, and must be kept free from blood. The latter is impossible unless the former is realized because if the patient suffers pain the necessary delicacy in technic required to perform a bloodless operation is not possible. With all details mastered thyroidectomy under local anesthesia becomes an exceedingly satisfactory and simple operation. Hertzler details his method.

109. **Diagnosis of Tympanites and Pneumoperitonitis.**—The air, if not confined by peritoneal adhesions, rises to the highest point in the peritoneal cavity, the liver and spleen drop away from the abdominal wall and instead of flatness to percussion over the liver in the mamillary line there appears tympany. The finding of tympany in this location is often considered a characteristic sign of perforative peritonitis, but it is also generally admitted that it occurs frequently in tympanites. More reliable information can be obtained by percussion in the right midaxillary line at about the level of the eighth rib. Here liver flatness can be found in either tympanites or pneumoperitonitis so long as the patient lies on his back. If, however, the patient turns on the left side, Duke claims, an important differential point can be obtained. In case of pneumoperitonitis, the liver drops away from the chest wall unless bound to it by adhesions and the flat percussion note changes to one of tympany. In tympanites, the flat note persists.

A change from a flat note to a tympanitic note in tympanites could only occur as a result of a loop of intestine slipping in between the liver and chest wall. Duke has examined a number of cases of tympanites with this point in mind and in every instance liver flatness in the axillary line has not been modified by change of position.

110. **Raw Starch in Diabetes.**—Knerr's procedure is to put the patient to bed and allow him nothing whatever except a dram of raw cornstarch stirred in a glass of warm water every two hours. The result is most gratifying. Both sugar and acidosis decrease gradually. The raw starch serves two purposes: It supplies considerable nourishment and it prevents acidosis, so there is no danger of coma and no need of alkaline dosage, and the patient suffers none of the distress of the rigid starvation regime. All wines and some whiskies and brandies contain some sugar, so Knerr prefers pure alcohol if any is to be given at all. Its only advantage is to modify the taste of the raw beaten egg.

New York Medical Journal

February 27, CI, No. 9, pp. 385-436

111 *Nature and Pathogenesis of Epilepsy. L. P. Clark, New York.
112 Medical Treatment of Pituitary Disease. W. Reber, Philadelphia.
113 Chronic Interstitial Nephritis. W. H. Good, Philadelphia.
114 Treatment of Chronic Nephritis. F. J. Dever, Philadelphia.
115 Relationship and Value of Systolic, Diastolic and Pulse Pressures. F. A. Faught, Philadelphia.
116 Analysis of Narcotic Drug Addiction. E. S. Bishop, New York.
117 Narcotic Drug Addiction. G. E. Pettey, Memphis, Tenn.
118 Drug Habitués. S. Block, New York.
119 Double Mastoiditis with Septic Sinus Thrombosis. C. H. Smith, New York.
120 Catharsis After Operation for Appendicitis. L. B. Meyer, New York.

111. Abstracted in The Journal, Jan. 30, p. 464.

New York State Journal of Medicine

February, XV, No. 2, pp. 45-84

121 Recent Progress in Ophthalmology. E. S. Thomson, New York.
122 Present Status of Squint and Ocular Motor Imbalance. H. W. Wootton, New York.
123 Practical Vaccine Therapy. H. Greeley, Brooklyn.
124 Psychotherapy in Every-Day Practice. J. R. Wiseman, Syracuse.
125 Importance of Medical Supervision of Older Children. E. J. Wynkoop, Syracuse.
126 Surgical Treatment of Acute Osteomyelitis. W. L. Wallace, Syracuse.
127 Eiweiss Milk. D. P. Arnold, Buffalo.

Ohio State Medical Journal, Columbus

February, XI, No. 2, pp. 73-150

128 Congenital Cataract. C. F. Clark, Columbus.
129 Diagnosis and Prognosis in Gastric Ulcer. Clinical Study of Five Hundred Consecutive, Operatively Demonstrated Cases. F. Smithies, Chicago.
130 Extragenital Syphilitic Infections. M. L. Heidingsfeld, Cincinnati.
131 Therapeutic Abortion. Indications and Methods of Procedure. S. J. Goodman, Columbus.
132 Review of Progress of Genito-Urinary Surgery, During Year 1914. H. A. Baldwin, Columbus.

Texas State Journal of Medicine, Fort Worth

February, X, No. 10, pp. 395-442

133 Operative Reduction of Fractures Without Use of Buried Retention Material. H. B. Gessner, New Orleans.
134 Non-Operative Treatment of Fractures of Femur. C. C. Cody, Jr., Houston.
135 Operative Treatment of Fractures. C. C. Nash, Palestine.
136 Case of Fracture of Patella. S. C. Red, Houston.
137 Medical Side of Exophthalmic Goiter. R. W. Baird, Dallas.
138 Indications and Contra-Indications for Surgical Treatment of Goiter. A. C. Scott, Temple.
139 Cancer of Intestines. R. R. White, Temple.
140 Surgical Notes from Year's Service in Foreign Clinic. E. L. Gilcreest, Gainesville.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

January, VIII, No. 4, pp. 641-682

1 Blackwater Fever in Formosa. J. Hatori.
2 Splenomegaly: Report of a Hundred and Four Cases Met with in South China. G. D. Whyte.
3 Yaws in Ceylon. P. H. Bahr.

Brain, London

October, XXXVII, Part 2, pp. 199-340

4 Phenomenon of "Tonic Innervation" and Its Relation to Motor Apraxia. Report of Three Cases. S. A. K. Wilson and F. M. R. Walshe.
5 *Dyssynergia Cerebellaris Progressiva—Chronic Progressive Form of Cerebellar Tremor. J. R. Hunt.
6 *Physiologic Significance of Reflex Phenomena in Spastic Paralysis of Lower Limbs. F. M. R. Walshe.

5. **Chronic Progressive Form of Cerebellar Tremor.**—Three cases are cited by Hunt from an analysis of which he concludes that there exists a chronic progressive form of cerebellar tremor, the most striking and characteristic symptom of which is a generalized volitional tremor which begins locally and gradually progresses. In its advanced stage the disorder of motility is comparable in severity and violence with that of Huntington's chorea or the generalized athetosis. There is, however, this difference, that in a position of rest and muscular relaxation the tremor movements

cease. An analysis of the motor disorder show a marked disturbance of the ability properly to control and regulate coordinated movements. This is shown by the presence of hypermetria, dysmetria, adiadokokinesis, dyssynergia, hypotonia and intermittent asthenia. All of these symptoms, including the volitional tremor, coincide with the classical symptomatology, which results from a loss of the cerebellar control over voluntary movements. The disorder is, therefore, regarded as of cerebellar origin.

The local onset, gradual progression and chronic course indicate a progressive degeneration of certain special structures of the cerebellar mechanism presiding over the control and regulation of muscle movements. Other symptoms of cerebellar disease, such as disturbances of equilibrium, objective vertigo nystagmus, cerebellar fits and seizures are absent. For this chronic progressive disorder of the cerebellar mechanism the name *dyssynergia cerebellaris progressiva* is suggested as best indicating the essential element in the motor disturbance (dyssynergia), its progressive tendency and relation to the cerebellum. The chronic progressive cerebellar tremor is, however, equally descriptive and may be found preferable.

6. **Reflex Phenomena in Paralysis of Lower Limbs.**—The reflex movements of the lower limbs in spastic paralysis, Walshe states, are almost entirely movements of flexion of the limb. The "receptive field" of this reflex commonly includes the whole limb, skin and deep structures, except for a small portion of the proximal part. The reflex is not purely cutaneous. The form of stimulus most effective is that having a noxious or harmful character, but light painless stimuli applied to the distal extremity of the limb, the sole, suffice to induce the reflex. The muscles actuated are the flexors and dorsiflexors of the limb, and the reflex response is a simple movement of flexion at all the points. Of this reflex flexion, dorsiflexion of the hallux is an integral and inseparable part, and this constitutes the "extensor" type of plantar response, the Babinski toe phenomenon. The physiologic significance of the flexion reflex is that of a defensive reflex, and it has no relation to "spinal stepping."

Concurrently with contraction of the limb flexors in this reflex, is inhibition of their antagonists, and all the phenomena of "reciprocal innervation" are seen in the reflex. Accessory to this reflex is reflex extension of the crossed limb. This includes plantar flexion of foot and toes, "the crossed plantar reflex" of many authors. The study of spastic paralysis of the lower limbs, from the point of view of reflex movement, confirms the existence of two clinical types. The reflex activity of the extensor and flexor groups of muscles is of specific type in each case. The extensors show a maintained tonic reflex—the spasticity of the extended leg. This may be called a static reflex. The flexors show, characteristically, reflex action of phasic type, which gives rise to reflex movements. In a cerebral lesion or in a purely pyramidal tract affection, however complete, there is constantly the extended type of spastic paralysis in the legs.

The condition of paraplegia in flexion is an example of unantagonized flexor reflex action, and it shows intermission, due to the phasic nature of this, until permanent contracture ensues. In complete spinal transection, physiologic or anatomic, the reflex activity of the limb is almost completely absent; but a minimal flexion reflex persists on stimulation of the sole, and thus affords further evidence of the purely spinal nature of this reflex. The extensors show no reflex activity in these cases. The condition of flaccid paralysis of the limbs in complete lesions of the spinal cord differs, therefore, in degree only from that of paraplegia in flexion, which Walshe concludes is analogous to the condition of the hind limbs of the "spinal animal." In complete spinal lesion the phenomena of "spinal shock" and "isolation dystrophy" mask and finally abolish the reflex activity of the flexors. It is seen from this that there is a doubt system of motor innervation of the lower limbs, such as was first suggested by Jackson and verified experimentally in animals by Sherrington. An analysis of the phenomenon of spastic paralysis of the limb extensors in man demonstrates the close analogy existing between the physiologic principles of motor innervation in animals and in man.

British Medical Journal, London

February 13, I, No. 2824, pp. 277-320

7 William Hunter and His Work in Midwifery. H. R. Andrews.
8 Case of Ménière's Disease. R. M. Simon.
9 Certification Under Mental Deficiency Act. W. A. Potts.
10 Insects and War: Mosquito. A. E. Shipley.
11 Surgical Experiences at Anglo-American Hospital, Wimereux, France. H. Lett and J. H. Morris-Jones.
12 Treatment of Cerebrospinal Meningitis by Antimeningococcus Serum Combined with Autogenous Vaccine. J. R. Collins.
13 Cases of Hip Dislocation and Spinal Cases Treated by Rib Transplantation. W. I. de C. Wheeler.

Edinburgh Medical Journal

February, XIV, No. 2, pp. 81-160

14 Relations of Inner Surface of Cranium to Cranial Aspect of Brain. J. Symington.
15 *Value of Emulsions of Liquid Paraffin and Castor-Oil in Treatment of Certain Types of Chronic Dyspepsia in Childhood. C. M'Neil.
16 Case of Tuberculosis of Bronchial and Mesenteric Glands, Followed by General Tuberculosis. J. L. Smith.

15. **Value of Liquid Paraffin and Castor Oil in Treatment of Dyspepsia.**—Emulsions of liquid paraffin or of castor oil (in small non-purgative doses) M'Neil has found to be of great value in the treatment of various and apparently distinct types of chronic dyspepsia in childhood. The types dealt with are: (*a*) Malnutrition, frequently associated with chronic diarrhea, and only seldom with constipation. (*b*) Enuresis, with dyspeptic symptoms. (*c*) Recurrent vomiting (cyclical or bilious vomiting). (*d*) Recurrent attacks of fainting or sudden pallor. (*e*) Urticaria or eczema, with dyspeptic symptoms. In a great majority of these diverse types of illness there is an abnormal condition of the stools; this may often be a true diarrhea, but not seldom also merely a too soft consistence of the stool with or without the presence of mucus. In the series constipation was present in only a small majority. A large number of these cases have followed the common infectious fevers of childhood, especially measles and whooping-cough. These post-infection cases of dyspepsia seem to M'Neil particularly amenable to this form of treatment. In a series of 13 completed cases of enuresis, 8 were cured and 3 greatly benefited by this treatment. The action of liquid paraffin and castor oil used as described is similar. It is entirely local, and confined to the mucous membranes of the alimentary tract. The action is most probably a sedative one, exerted on the congested and unhealthy mucous lining of the small and large intestines.

Glasgow Medical Journal

February, LXXXIII, No. 2, pp. 81-159

17 Leper Houses and Medieval Hospitals. C. A. Mercier.
18 Types of Bullet Wounds Observed in No. 3 Scottish General Hospital, Stobhill. A. MacLennan.
19 Case of Gastric Cancer with Bone Marrow Metastases and Anemia. A. W. Harrington and J. H. Teacher.

Journal of Laryngology, Rhinology and Otology, London

September, XXIX, No. 9, pp. 449-480

20 *Oculomotor Paralysis of Otitic Origin. F. H. Westmacott.

October, No. 10, pp. 481-512

21 *Diathermy in Treatment of Inoperable Growths of Nose and Throat. W. D. Harmer.
22 *Treatment of Inoperable Growths of Nose and Throat by Radium. W. Hill.
23 Treatment of Inoperable Cases by Means of Roentgen Rays. J. MacIntyre.

November, No. 11, pp. 513-544

24 Clinical Aspect of Otosclerosis. G. Walker and J. S. Fraser.
25 Treatment of Otosclerosis. G. J. Jenkins.
26 * Auditory Reeducation. F. F. Muecke.

December, No. 12, pp. 545-618

27 Minimizing of Hemorrhage in Extirpation of Tonsils and on Employment of Hemostatic Guillotine. W. Hill and G. J. F. Elphick.
28 Difficulties and Dangers of Exploratory Puncture of Antrum of Highmore. A. B. Kelly.

January, XXX, No. 1, pp. 1-56

29 Diagnosis and Treatment of Abscess of Cerebellum with Record of Cases Subjected to Operation. W. Milligan.
30 Latent Empyemata of Nasal Accessory Sinuses. O. S. Gogarty.
31 Otogenic Pharyngeal Abscess. D. McKenzie.

February, No. 2, pp. 57-88

32 *Perez Bacillus and Alleged Relationship of Ozena to Certain Condition in Dog, and More Especially to Distemper. J. P. McGowan.
33 Case of Tracheal Tumor. J. Adam.

20. **Oculomotor Paralysis of Otitic Origin.**—Interference with the function of the third cranial nerve, Westmacott says, may occur in one of three parts, according to the symptoms produced. First, in the nuclei of origin in the grey column in front of the aqueductus cerebri and the corpora quadrigemina, together with the supranuclear portion. Secondly, in that portion which extends from the point of exit of the united bundle of fibers on the medial side of the cerebral peduncle, just in front of the pons, passing forward between the posterior cerebral and superior cerebellar arteries to pierce the dura mater beside the posterior clinoid process, in the small triangular space between the free and attached borders of the tentorium cerebelli. Beneath the dura mater the nerve courses through the lateral wall of the cavernous sinus until it enters the orbit through the superior orbital fissure. Thirdly, from its entrance into the supra-orbital fissure and orbit, in cases in which it divides, to the terminations of its distribution. It is considered, however, that all lesions below the nuclei are peripheral, all above are cerebral. When paralysis exists with an ipsolateral otorrhea, accompanied by headache and vomiting, the author urges that an exploration of the auditory apparatus should be at once undertaken to determine the extent and limits of the disease, while at the same time it should be borne in mind that the examination of the nasal fossa and accessory cavities may reveal the focus of disease, in so much as nasal disease infection is far more common than aural infection in the production of paralysis of the oculo-orbital nerves.

21. **Diathermy in Treatment of Inoperable Growths of Nose and Throat.**—Harmer is of the opinion that diathermy is a method of dealing with growths which is worth the consideration of every surgeon in charge of a department for diseases of the nose and throat. The results of treatment of cancer of the mouth have been very encouraging.

22. **Treatment of Inoperable Growths of Nose and Throat by Radium.**—Hill's experiences with radium in epithelioma are on the whole sufficiently encouraging to lead him to assert that radium therapy is worth trying in epithelioma of the throat. Diathermy, however, has a much wider field of application than radium in these areas, and should be the palliative method of choice in most cases, though radium may usefully be employed as an adjunct. In the esophagus the converse is the case.

26. **Auditory Reeducation.**—The result of Muecke's experience with reeducation has not been satisfactory. He states emphatically that no patient should attempt this treatment until a reputable aurist has either ordered it or found further orthodox treatment useless—for although the treatment can do no direct harm, it may do indirect harm by postponing the removal of the cause of the deafness.

32. **Perez Bacillus and Relationship of Ozena to Condition in Dog.**—McGowan suggests that before it is definitely accepted that ozena is a disease of dogs capable of being transmitted to man, the questions arising out of the resemblance of Perez's organism and the organism of distemper should be further investigated. The author says that in a hurried examination the distemper organism could be mistaken for the organism described by Perez as the cause of ozena. It is only after the growth characteristics of these organisms have been tested in a number of special medium that they are seen to be different organisms in reality. Thus, Perez's organism resembles the organism of distemper in being a Gram-negative cocco-bacillus; Perez's organism is always non-motile, while the distemper organism, usually motile, at some stages of its cultivation may be non-motile; on potato, Perez's organism gives a flat, greyish-yellow slightly moist growth, which might in a hurried examination, be mistaken for the altogether different and distinctive raised, copper-brown, succulent growth of the distemper organism; in litmus milk, Perez's organism gives a doubtful alkaline reaction, which could under certain circumstances, but not in a thorough comparison, be mistaken for the marked alkaline reaction with white deposit of the distemper bacillus. The growths of the two organisms on gelatine, peptone water, and broth are much alike with this exception, that while Perez's organism may produce some indol, the distemper organism produces none. On agar, in tubes inoculated heavily, the appearance of both organisms is much the same; but in cases in which the tubes are lightly inoculated so that only discrete colonies appear, the mode and rate of growth and the characteristic appearance of the distemper organism colonies can hardly be mistaken for those of the Perez's organism. On glycerin agar, the naked-eye appearances of the growths are much the same, but microscopically, while the distemper bacillus undergoes a marked change in size and shape, no such change is observable in Perez's organism. On a large number of the sugars, the reaction of the two organisms is the same, but whereas Perez's organism produces acid in glucose and a doubtful acid reaction in galactose, the distemper organism produces no change in these sugars. Another very noticeable distinction between these two organisms is their reaction in a lactose medium containing neutral red—for, while Perez's organism produces a very marked fluorescence, the distemper organism produces none.

Lancet, London

February 13, I, No. 4772, pp. 309-358

34 Puerperal Eclampsia. C. E. Purslow.
35 *Experimental Purpura. J. C. G. Ledingham and S. P. Bedson.
36 Study of Shell Shock. C. S. Myers.
37 Pseudolevulose of Diabetic and Other Urines. P. J. Cammidge and H. A. H. Howard.
38 *Death from Strangulated Internal Hemorrhoids. P. Lockhart-Mummery and M. K. Joshi.
39 Treatment of Gunshot Wounds of Femur. C. Wallace.
40 Typhoid and Paratyphoid Infection in Relation to Antityphoid Inoculation. G. Dreyer, E. W. A. Walker and A. G. Gibson.

35. **Experimental Purpura.**—Data are recorded by Ledingham and Bedson on the blood changes in guinea pigs after inoculation with anti-guinea-pig-plate serum. An early fall in the number of platelets simultaneously with the outburst of skin purpura is found to be a marked feature. Purpura has also been produced in rabbits and rats by inoculation with the respective antiplate serum. The blood changes in rabbits have been followed with results similar to those obtained in guinea pigs. The authors found that antiplate serum, in addition to its purpura producing properties, possesses in common with other cytolytic serum considerable lytic powers, which in all probability contribute largely toward the fatal issue in small animals. Death, however, may occur as the result of extensive hemorrhages alone without any obvious lytic changes as evidenced by hemoglobinuria. Serum obtained by immunization with red cells or leukocytes did not produce purpura. Purpura was not produced by inoculating animals with heterologous antiplate serum.

38. **Death from Strangulated Internal Hemorrhoids.**—The authors report the case of a patient who died apparently from septicemia, the results of extensive gangrene of the rectum and neighboring tissue, as the direct result of thrombosed internal piles. They are of the opinion that the condition was rendered possible by the secondary anemia from which the patient was suffering.

Archives des Maladies du Cœur, etc., Paris

January-February, VIII, Nos. 1-2, pp. 1-44

41 Differential Leukocyte Count in Mumps. (Formule leucocytaire dans les oreillons.) C. Aubertin and H. Chabanier.

Archives Mens. d'Obst. et de Gynécologie, Paris

October, III, No. 10, pp. 145-192

42 Fibroma of Broad Ligament; Two Cases. M. Haller.

Bulletin de l'Académie de Médecine, Paris

January 26, LXXIII, No. 4, pp. 125-152

43 Coating the Feet Thick with Grease Wards off Freezing. (Emploi des corps gras pour éviter les gelures.) A. Piedallu.
44 Extraction through Urethra of Bullet in Bladder. G. Luys.

45 Notes of an Ophthalmologist two Months a Prisoner of War in Germany. (De la recherche méthodique et de la correction des vices de refraction dans l'armée allemande. Résultats obtenus dans le recrutement et l'amélioration des contingents armés par les services spéciaux d'ophthalmologie.) G. Bonnefon.
46 Tetanus; Twenty-One Cases. P.-R. Joly.

February 2, No. 5, pp. 153-168

47 Injuries Ascribed to Freezing Due Mainly to Impeded Circulation. (Les pieds gelés dans l'armée.) Temoin.
48 Wounds of the Nerves in War. (Traitement des blessures des nerfs par projectiles.) S. Pozzi. (Section complète du nerf médian par un projectile, suture nerveuse, restauration de la fonction le 4e jour.) S. Mercadé.
49 Streptothricosis Involving the Bronchi; Recovery. (Contribution à l'étude des oosporoses.) A. Sartory and P. Lasseur.

Lyon Chirurgical

August, XII, No. 2, pp. 101-228

50 *Tuberculosis of a Horseshoe Kidney. (Tuberculose du rein en fer à cheval.) V. Rochet and L. Thévenot.
51 *Pyelography in Diagnosis of Kidney Disease and Movable Kidney. G. Gayet and J. De Beaujeu.
52 Multiple Bony Exostoses with Arrest of Development and Deformity of the Skeleton. A. Rendu and P. Lévy.
53 Systematic Median Subumbilical Laparotomy in Treatment of Strangulated Inguinal Hernia in the Elderly. R. Leriche.

50. **Tuberculosis of Horseshoe Kidney.**—Single kidney is an anomaly that occurs frequently enough to be of considerable importance in pathology. Botez found it once in 715 necropsies and once in 143 operative cases. Rochet and Thévenot have collected from the literature ten cases of tuberculosis in a horseshoe kidney, brief abstracts of which are given, and they add a detailed history of one case of their own. In such cases a diagnosis must first be made of renal tuberculosis; they review the various methods of functional examination of the kidneys for this purpose; in the second place the existence of a horseshoe kidney must be esablished. The ureteral orifices appear at the normal location and nothing in the cystoscopic examination reveals the anomaly. Careful palpation will reveal a median transverse mass, with two lateral lobes situated lower down and nearer the median line than the normal kidneys. If the two ureters are catheterized with opaque catheters and collargol is injected into the pelves, the ureters and pelves will be found much nearer the median line than normal.

Fortunately, the tuberculosis is usually unilateral, and the two lobes function independently, so that removal of one lobe has the effect of a total, not a partial nephrectomy; the fatal effects of the latter are well known. The functional sufficiency of the remaining lobe must of course be demonstrated. In seven of the cases, resection of one lobe had been performed, in five with complete success. Median laparotomy is preferable to the lumbar incision, because it brings into view the vascular pedicles of the kidney; in addition to those for each lobe there is usually a median one for the isthmus, made up of two short arteries from the aorta or the mesenteric arteries. It is easy to avoid these in the abdominal operation. The isthmus is sometimes adherent and great care must be exercised in freeing it. If these precautions are taken, the operation is not more difficult than an ordinary nephrectomy. In only one case was the operation followed by a urinary fistula.

51. **Pyelography.**—Gayet and de Beaujeu review the history of the development of pyelography and discuss the bad effects that some surgeons have had with it, such as pain, fever, renal colic and, most serious of all, penetration of the collargol into the kidney parenchyma. The latter they believe is due to injecting the collargol under too great pressure; they no longer use a syringe, but let the fluid flow in under atmospheric pressure, without raising the receptacle too high, and they have no such complications. General intoxication from the silver salt, which has been reported by a few authors, they do not believe occurs. They give a detailed description of the technic, both for injecting the collargol and taking the Roentgen picture, giving eighteen roentgenograms and seventeen case histories, illustrating the different conditions in which they have made use of the procedure. Thus far they have used it mainly in suppurative pyelonephritis, to determine the degree of dilatation and retention and also for the antiseptic action of the collargol, which they find is very powerful; also in cases of difficult diagnosis of tumor, to locate the kidney and find whether the tumor really belongs to the kidney; and also with movable kidney.

Movable kidney is one of the most disputed fields in kidney pathology. Many clinicians oppose operation, because there are so many cases in which it is neither necessary nor effective. But the fact remains that there are cases that require operation, and it is in distinguishing these that pyelography is so valuable. The examination should always be made first in the reclining and then in the standing position; in this way the degree of excursion of the kidney can be determined. It will often be found that when the patient stands the kidney sinks down into the pelvis. This creates hydraulic conditions that make it very difficult for the urine to be discharged. These slight degrees of hydronephrosis are frequent, and early operation overcomes them. Pyelography not only shows whether an operation is necessary, but also what form of operation is best adapted to the case; ureteropyelostomy may be necessary, or simple fixation in the correct position may suffice. If a previous nephropexy has fixed the kidney in a poor position, pyelography will disclose the fact. Pyelography should be performed with all the care that would be given to any other operation. When so performed, and applied judiciously, it will be of the greatest service in urinary surgery. A bibliography of forty-eight titles follows the article.

Lyon Médical

XLVI, Nos. 32-35, pp. 221-260. Last indexed Sept. 19, 1914

54 Concretions in the Lungs. A. Cade and J. Guérin.
55 Improved Technic for Making Artificial Nose. A. Pont.

Nos. 36-41, pp. 261-312

56 Perforating Ulcer of the Duodenum; Seven Cases. Lagoutte.

Nos. 42-48, pp. 313-384

57 *Hematein Bedside Color Test for Occult Blood. (Nouveau procédé de recherche du sang en clinique.) H. Couturier.

Nos. 49-52, pp. 385-416

58 The Therapeutic Action of the Mineral Mud of the Black Sea Region. (Les limans de la région de la Mer Noire.) E. and Mme. E. Barral.

57. **Improved Technic for Test for Occult Blood.**—Couturier has been using hematein for this purpose. It is only slightly soluble in water, but nevertheless it gives it a pronounced red color. In contact with sodium hydroxid this red solution turns a deep violet blue, giving an insoluble compound of hematein and sodium. This compound, exposed to the air, oxidizes after several days, and gives brownish or yellow compounds, depending on the dilution. This change is only hastened a little by the addition of hydrogen peroxid, but if a trace of blood is added to the hydrogen peroxid it takes place almost instantaneously. To avoid its oxidizing, the hematein sodium mixture should be prepared just before using. Three fluids are required: the 0.05 per cent. aqueous solution of hematein; 40 per cent. sodium hydroxid, and hydrogen peroxid, 12 volumes. These will keep almost indefinitely. In addition to the 4 or 5 c.c. of the specimen fluid to be examined, there should always be a control solution of the same material but known not to contain blood. Add to each of the two tubes 4 to 5 c.c. of the sodium hydroxid and shake. Then add to each tube two drops of the solution of hematein. A deep blue color will be observed, about equal in the two tubes. Then add ten drops of hydrogen peroxid and compare. If blood is present the tube containing it will turn very rapidly in three or four seconds, to violet red, then in twenty seconds to clear brown, and in forty seconds to pale yellow, while the control tube will not show these changes for several minutes. The reaction can be used practically with amounts of blood as low as 1:400,000. A table is given showing the results in different materials, such as urine, sputum, fecal matter and cerebrospinal fluid obtained by puncture. The results agreed with those shown by the microscope in all but one case, and in this the microscopic examination was shown to be wrong, because of the difficulty of recognizing blood cells that had been digested. There are a number of substances, such as nitric acid, that change the reaction, but none that give the characteristic blood reaction. Couturier has been using the reaction for four years with constant satisfaction. It can readily be used

at the bedside and it is reliable. The solutions are not durable, he says, in the usual tests for occult blood, while the technic is more complicated than his hematein method.

Revue Médicale de la Suisse Romande, Geneva

January, XXXV, No. 1, pp. 5-56

59 Pharmacologic Action of Allyl Morphin. A. Mayor and B. Wiki.
60 *Gastro-Intestinal Disturbances in the Tuberculous from Insufficiency of the Abdominal Muscles. Tecon.
61 Treatment of Pneumonia. E. L. Du Pan.
62 Treatment of Gas Gangrene. A. Van Emden.

60. **Necessity for Strengthening Abdominal Walls in the Tuberculous.**—Tecon is convinced that many of the gastrointestinal disturbances in the tuberculous are the result of conditions caused by the weakening and sagging of the abdominal walls under toxic influences. He has been much impressed by the improvement that followed systematic exercise of the abdominal muscles to restore tone in them. The prolonged reclining, forced feeding, coughing, drugging, worry and depression and the elimination of toxins through the mucosa of stomach and bowels amply explain the tendency to atrophy of the muscles. The exercises, and chiefly those of the abdominal walls he has found most effectual for overcoming it, without injury elsewhere, are to have the patient recline and raise himself to a sitting posture and bend the trunk forward, the arms extended, and the feet held firm under some piece of furniture. Carnot and Glenard published last year a study of the intragastric pressure during this exercise. It averaged 10 cm. water, reclining; rose to 35 during the effort of raising the trunk, became 15 as the trunk was held upright and increased to 23 as it was bent forward. Tecon has this exercise done slowly and moderately five times before breakfast. After a few weeks of training it is done up to fifteen times. He gives the details of five cases to show the prompt improvement in stomach and bowel functioning when the abdominal muscles regained tone under these exercises.

Archiv für klinische Chirurgie, Berlin

CVI, No. 2, pp. 251-433. Last indexed January 16, p. 279

63 *Spring Spreaders in Treatment of Abscesses. (Behandlung von Abscessen mit Spreizfedern.) M. Tiegel.
64 Experimental Autoplastic Transplantation of Bone Marrow. (Knochenmarkstransplantation.) K. Miyauchi.
65 *Autoplastic Methods for Arresting Hemorrhage, and Aseptic Thrombosis. J. Philipowicz.
66 *The History of the Saw in Surgery. (Die chirurgische Säge.) E. Holländer.
67 Tetany and Trauma of Bone. (Tetanie und Knochentrauma.) N. Guleke.
68 *Thyroid Transplantation in the Bone Marrow. (Schilddrüsentransplantation in das Knochenmark.) N. Guleke.
69 *Inflammation Tumors in the Omentum. (Entzündliche Geschwülste des Netzes.) L. Peterhanwahr.
70 *Contradictory Incontinence with Bladder Tumors. (Ueber Incontinentia urinae paradoxa bei gewissen Harnblasentumoren, speciell mit Rücksicht auf die Indikationsstellung fur Prostatektomie.) A. Troell.
71 The Ureter in the Newly Born. (Zur Hydronephrosenfrage.) C. Posner.
72 Experimental Plastic Operations and Transplantation of Nerve and Muscle Tissues. P. Erlacher.
73 Suture and Transplantation of Tendons. (Sehnensutur und Sehnentransplantation.) J. Jensen and C. D. Bartels.

63. **Spring Spreaders for Abscesses.**—Tiegel has a set of the spring spreaders shown in the illustrations, different sizes being adapted for different forms of subcutaneous suppuration. They ensure the evacuation of the secretions in a way never realized before, he says. The surrounding inflammation rapidly subsides while the abscess itself promptly heals with the minimum of destruction of tissues. The incision is made at the lowest point to facilitate draining. The spreader is introduced at once, still under the anesthetic used for the incision; the complete escape of the pus puts an end to the pain from pressure. Abscesses in the hand, neck, axilla and inguinal region are the best adapted for the use of the spreader. Even when the location of the abscess does not permit complete evacuation by this means, for example, with suppurating mastitis, yet the spreader, by rendering tamponing unnecessary saves much pain. There is so much less destruction of tissue when the spreader is used, that the lesion heals with not much more than a linear scar and with the minimum of deformity. Eleven typical cases are described in detail with illustrations showing the fine functional outcome. In one case all the tendon sheaths of the hand and wrist had been involved in the suppuration and had been incised, and yet there was no necrosis of any of the tendons and the functional use of the hand is practically normal.

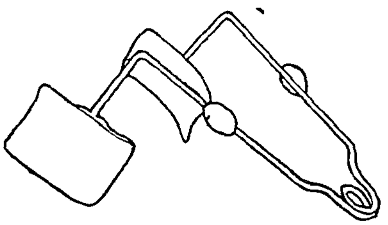


Fig. 1.—Spring spreader.

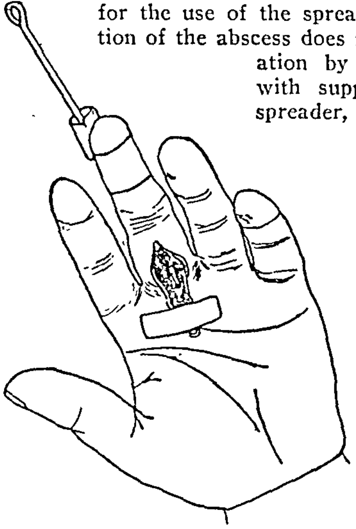


Fig. 2.—Spreader in place.

65. **Autoplastic Hemostasis.**—Philipowicz declares that this autoplastic method has never failed to arrest hemorrhage, either in the clinic or in experiments, when properly done. By this he means that the flap was cut of the proper shape and of sufficient size, and that it was fitted to the bleeding surface and pressed against it with the fingers until blood no longer oozed from the bleeding surface. This usually takes about a minute and a half. Omentum and fat tissue can be used for the purpose in the abdomen, fat tissue for the kidney, and muscle tissue for the brain, spinal cord and in the thorax. This technic is particularly advantageous in case of hemorrhage from the spleen or kidneys. As soon as the hemorrhage is arrested the living flap sticks to the bleeding surface without necessity for suturing, and it fits into all recesses, and there is no further tendency to bleed. The autoflap also protects against development of adhesions.

66. **History of the Surgical Saw.**—Holländer gives illustrations of ancient saws and trephining instruments from the stone age down. A number of the saws dating from the bronze age were found in company with surgical instruments so they probably had been used at operations.

68. **Thyroid Transplants in the Bone Marrow.**—Guleke reports extensive research on dogs which has demonstrated that trauma affecting the bone has no influence on the appearance or course of tetany following loss of the parathyroids. In his experiments with thyroid tissue implanted in the tibia, the implant was destroyed or eventually absorbed in all but one of the animals. In this dog the implant seemed of normal aspect even under the microscope six weeks after the operation.

69. **Inflammation Tumors of the Omentum.**—Peterhanwahr has compiled 44 cases; in all but 8 cases there had been an abdominal operation from five days to three years before. Silk threads and even catgut seemed to have been a factor in some cases; in others the omentum had been ligated at a point where the tissues were not normal. The diagnosis in postoperative cases is simple, but it may prove difficult in the insidiously developing tumors of the kind secondary to disease in some adjacent organ. Szersznski described in 1909 a case in which a simple appendectomy was followed by postoperative inflammation of the omentum, with fever and suppuration dragging along for months. The patient was cured finally after varied operative measures.

Peterhanwahr has encountered a typical case of postoperative inflammation of the omentum in a pregnant woman of 34, with active pulmonary tuberculosis, three weeks after an operation on an inguinal hernia. It developed with pains on the left side of the abdomen, above the umbilicus and a tumor became evident, finally filling almost the entire left abdomen, an inflammatory hyperplastic proliferation of connective tissue with multiple small pus pockets. The transverse colon was embedded in the tumor and the whole mass was cut out after ligation of the gastrocolic ligament. The uterus was emptied at a later operation as the pressure from the enlarging uterus prevented the healing of the fecal fistula above. After this the woman rapidly recovered. In another case the omentum became inflamed secondary to gall-bladder trouble. The omentum tumor was partially resected, the gall-stones removed and the woman was at once relieved from all disturbances. Surgical measures are seldom necessary for inflammatory tumefaction in the omentum. It subsides spontaneously, as a rule, under bed rest, moist heat and inunctions with a potassium iodid or mercury salve. If suppuration is evident, the pus can be easily removed by an incision as at this stage the tumor is generally adherent to the abdominal wall. If adhesions prevent total excision of the tumor partial resections at various points will answer the purpose.

70. **Contradictory Incontinence of Urine.**—Troell reports three cases of tumor in the bladder in which urine dribbled during the day and night while the patient was awake but not a drop was lost during sleep. This paradoxical incontinence was associated with symptoms indicating a tumor in the bladder and it was cured by removal of the tumor or enlarged prostate. This paradoxical ischuria had lasted one, four and two years in the three cases and there had never been total retention at any time. All were completely cured by the operation.

Berliner klinische Wochenschrift

February 8, LII, No. 6, pp. 121-144

74 *Behring's Antitetanus Serum. (Mein Tetanusimmunserum.) E. v. Behring.
75 *Prophylaxis of Tetanus. C. Ritter.
76 *Experimental Research on Intermittent Electric or Mechanical Stimulation of Organs and Nerves over Prolonged Periods. C. Hammesfahr.
77 Importance of Cholesterin for Development of Giant-Cell Tumors in Tendons and Joints. S. Weil.
78 *Pressure on the Abdomen in Artificial Respiration. (Zur Frage der künstlichen Atmung.) E. Aron.

74. **Behring's Antitetanus Serum.**—Behring states that provisions have been made so that 100,000 prophylactic doses of 20 units each are now available each month. He advises a dose of 3⅓ c.c. of the six-fold immune serum. The French standard dose is equivalent only to 2 c.c. of the six-fold serum. He says that he has succeeded in removing from the immune serum, both for tetanus and diphtheria, that element in the protein content which enters the serum when the blood platelets are dissolved.

He explains a method with which it is possible to compute the total amount of blood. This is done by injecting a given number of antitetanus serum units directly into the blood and then, ten to fifteen minutes later, determining the proportion of antitoxin units contained in 1 c.c. of blood. For example, if 14 units are injected and if 1 c.c. of the blood drawn by venesection soon after contains 1/400 unit, then he estimates that the total amount of blood in circulation is 400 x 14, namely, 5,600 c.c. He quotes several research workers who have applied this method for estimating the total amount of blood in a total of 123 persons tested. Kammerer hails this as the simplest and most reliable method at our disposal for the purpose. The average in health was found by this method to be 9.8 per cent. of the body-weight. Vierordt computed it by other means at 7.7 per cent. or one-thirteenth of the body-weight. Behring tests the antitoxin content of the serum by its power to neutralize tetanus toxin when injected subcutaneously into mice. The intravascular injection of the antitetanus serum in this way for the test was never followed by any signs of harm in the 123 cases.

75. **Prophylaxis of Tetanus.**—Ritter quotes some recent statistics which show that of the 60,000 wounded in Bavaria up to the time of writing, 0.7 per cent. had died and 0.4 per cent. from tetanus. The experiences with various forms of treatment of tetanus have all been disappointing; the reports in regard to magnesium sulphate are much less favorable now than at first. Even prophylactic injections are not always able to ward off the disease. Consequently we must attack the wound more vigorously from the start. Friedrich makes a practice of excising the wound all around for 1 cm. into sound tissue, both at the surface and in the depths. This method is the ideal, Ritter declares, but it is not always applicable. Another method is to apply hyperemia according to Bier's stasis technic. This washes out the wound from within on account of the higher blood pressure in the tied-off limb. He urges a trial of this measure on a large scale. Copious application of Peruvian balsam or its equivalent checks the production of hard crusts behind which the secretions can accumulate. Painting with tincture of iodin is a step in the right direction, he reiterates, but it does not go far enough.

76. **Electric or Mechanical Stimulation of Organs and Nerves.**—Hammesfahr's method is based on the principle that when electricity is applied to any surface it follows the route of least resistance. He introduces a wire into the animal's body, the outer end terminating in a button under the skin. The procedure is easy and the wire heals promptly in place and does not trouble the dog. The wire can be thus passed around a nerve, without injuring it, or a metal cuff can be drawn around the pylorus or other organ. The positive electrode is fastened with plaster just over the button under the skin. A number of illustrations are given showing the details of the technic and the response to electric stimulation of the gall-bladder, etc. Other experiments were made with a magnet after incorporation of iron filings. The animals keep healthy and the experiments can be continued indefinitely.

78. **Artificial Respiration.**—Aron declares that his experiments on rabbits have shown that pressure on the abdomen is far more effectual in promoting expiration than pressure on the thorax. He thinks that artificial respiration should be managed so that the expiration movement should be enhanced by pressure on the abdomen. The only way, he adds, to determine the question is by experiments on an unconscious human being; in the conscious, it would be impossible to realize such relaxation as would permit an accurate judgment as to the value of compression of the abdomen instead of the thorax where compression is hampered by the ribs.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 2, XLV, No. 1, pp. 1-32

79 *Senile Psychoses. Bleuler.
80 Experiences in a German Base Hospital. G. Hotz.

January 9, No. 2, pp. 33-64

81 Drugs to Influence Parturition; Oxytocics. (Ueber Wehenmittel.) H. Guggisberg.
82 Abnormal Position of Fetal Head in Primiparae at Term. (Zur Bewertung des Kopfhochstandes vor der Geburt bei Erstgebarenden.) A. Nordmann.

January 16, No. 3, pp. 65-96

83 *The Nature of Anesthesia from Magnesium. (Wesen der Magnesium-Narkose.) M. Cloetta.
84 *Hereditary Relations between Alcoholism and Epilepsy. J. Stuchlik.

January 23, No. 4, pp. 97-128

85 Roentgen Diagnosis of Gastric Cancer. (Magenkarzinom.) E. Stierlin. Concluded in No. 5.
86 Perforation of Nasal Septum. (Nasenscheidewandperforationen.) F. Diebold.

January 30, No. 5, pp. 129-160

87 *The Physician's Task after Catastrophes. (Ueber Katastrophenmedizin.) H. Zangger. Concluded in No. 6.

79. ***Senile Psychoses.***—Bleuler gives an outline sketch of the various senile psychoses as the last fifteen years have classified them by the organic findings. The association of ideas suffers particularly in the organic forms; in progressive paralysis or actual senile degeneration the drawbacks of business undertakings are *not* taken into account, and the man is liable to do extremely foolish things as he sees only the chances for success. On the other hand, the man with temporary melancholia or morbid worry sees only the chances for failure. With this defect in association of ideas

a man is liable to jump off a bridge after his hat, if it has blown into the water, or jump off a high porch after his cigar if he happens to drop it. This defect in association, and not a perverted moral sense, is the probable explanation of the sexual crimes of the senile. They see in a little girl merely the female, and if it is possible to make clear to them the extent of their crime, they feel normal horror and remorse if they had formerly been men of character.

The instability of the emotions causes the senile to be exceptionally swayed by suggestion. One who knows how to manage suggestion can do as he will with the senile, while under other circumstances they are extremely obstinate and perverse. The way in which the senile forget recent events and recall those farther back sometimes permits a date of demarcation showing exactly when the mental trouble began. With organic disease the sleep is usually disturbed; such persons may be able to sleep in the daytime while they are restless and excited at night.

As we do not know the causes we can not do much in prophylaxis or treatment of senile psychoses. It is wise, however, for the patient to avoid alcohol and tobacco, as there seems to be a connection between tobacco and arteriosclerosis. When the psychosis has developed the physician should see to it that the patient does not lose his property by foolish business ventures, etc. A carefully written out report at the time of the findings in the case may prove of valuable assistance in combating an unjust will. On the other hand, the physician's testimony after an attack of apoplexy may prove valuable evidence as to the unimpaired mind when the layman thinks that the aphasia, etc., testify to mental confusion.

Physical and psychic treatment of arteriosclerosis psychoses may be of great benefit, especially in the early stages. Measures that make much demand on the patient should be avoided and the patient should be guarded against mental and physical effort beyond what he can stand. Complete repose is inadvisable; we must cautiously ascertain the limits in each case. Tonics for the heart may be useful, supplemented by opiates if there is much dread. Potassium iodid, 5 parts, with potassium bromid, 20 parts, in 300 parts water; a tablespoonful three times a day in a glass of water, is often of decided benefit. Large intake of fluids, especially alcoholic, should be avoided, but the main point is to influence the patient's mind, comforting and tranquillizing him; the symptoms grow milder and rarer as the patient is brought to pay less attention to them. It is a great blessing if he can work and thus be diverted. Work, therefore, should never be forbidden, but the right kind and amount of work should be found for each case. This may lead to far-reaching improvement lasting for years even in apparently quite severe cases.

83. **Magnesium Sulphate in Tetanus.**—Cloetta concludes this pharmacologic study of magnesium sulphate with the statement that this method of treating tetanus is like the old curare treatment of tetanus come to life again, only that a central-sensory action is superposed on the purely peripheral-motor paralysis induced by curare. This superposed action does not reduce the dangers of magnesium sulphate. The only advantage of the latter is that its action can be rapidly annulled with calcium but even this may come too late to arrest the paralysis of the respiration as happened sometimes in his experiments. In dogs the magnesium salts do not penetrate into the protoplasm of the brain, another point in which anesthesia from magnesium sulphate differs from that with the bodies of the alcohol series. The difference with the latter between the action on the periphery and on the center does not exist with magnesium sulphate. Other peculiarities are that the paralysis affects both the sensory and motor spheres, and that the magnesium salts do not behave in accordance with the lipoid theory.

84. **Alcoholism and Epilepsy.**—Stuchlik writes from Bohemia that his study of the family history of 176 epileptics showed alcoholism in one or both parents in 36 per cent., and among the grandparents, in 38 per cent. A number of family trees up to five generations are given which confirm the importance of liquor drinking as a factor in epilepsy in children. An inheritance of epilepsy itself was evident in only 6.4 per cent., and in the direct progenitors only in 4.1 per cent. Other predisposing affections, hysteria, idiocy, organic brain disease or constitutional disease were still rarer, but the epilepsy has a tendency to develop earlier with an inherited taint of this kind. Fully 43 per cent. of the epileptics had at least one alcoholic progenitor. In 50 per cent. of the cases in which the parents were alcoholic, the grandparents and side branches of the family were healthy.

87. **Catastrophe Medicine.**—Zangger remarks that most of the catastrophes of our day are the by-effects of progress in technic. The effect on the survivors of earthquakes, explosions and caving in of mines is far from being so severe as the effect of the catastrophes of the war. Shell explosions in the trenches and buildings generate or release gases in confined spaces like an explosion in a mine. But the mine accident and the earthquake act on persons in their normal condition, while in war the men are under intense and long continued physical strain and excitement. The invalided combatants in the present war who are coming in large numbers to Switzerland to recuperate present conditions remarkably similar to those after natural catastrophes, only more pronounced. The prognosis is good under suitable measures. The heart and nervous system of course suffer most and the multiplicity of injurious factors, the strain, the gases, the chilling, irregular eating, etc., in addition to the wounds, all have their share in inducing the syndrome. He classifies the various clinical pictures that may be encountered from the mild cases with merely unstable heart and intense exhaustion to the actual psychoses and the cases in which some latent tendency was aroused and fanned into a flame, as when typical exophthalmic goiter develops in the course of a few days.

Deutsche medizinische Wochenschrift, Berlin

December 10, XL, No. 50, pp. 2057-2084

88 *Wounds of the Spinal Cord in War. (Schussverletzungen des Ruckenmarks.) R. Finkelnburg.
89 *Tetanus. Lewandowsky.
90 Tangent Wounds of the Skull. (Tangentialschüsse des Schädels.) C. Longard.
91 Wounds of the Jaws in War. (Schussfrakturen der Kiefer und ihre Behandlung.) Adloff.
92 *Cystin Stones and Cystinuria. A. Neumann.
93 *Simplification of Technic for Agglutination Reaction. (Vereinfachung der Gruberschen Reaktion.) L. v. Liebermann and J. Acel.
94 Digestion of Liver Tissue in the Abderhalden Test Applied to Hard Drinkers. (Abderhalden-Serum Reaktion von Lebergewebe bei Alkoholisten.) E. Martini.

February 4, XLI, No. 6, pp. 153-180

95 *Vermin. (Bekämpfung der Läuseplage.) K. Kisskalt.
96 Hygiene in the Field. E. Hesse.
97 Aneurysms from Wounds in War. A. Bier. Commenced in No. 5.
98 Abdominal Wounds. (Richtlinien für die Notwendigkeit des Eingriffs bei Bauchschüssen.) H. Töpfer.
99 Obstruction of Mesenteric Vessels. (Zur Klinik und Diagnose des mesenteriellen Gefässverschlusses.) Rupp.
100 *Food during the War. (Kriegsernährung.) J. Schwalbe. (Nutzbarmachung der Küchenabfälle für die Volksernährung.) W. Hanauer.

88. **Gunshot Wounds of the Spinal Cord.**—Finkelnburg reports several cases of a bullet wound of the spinal cord which presented every evidence of a transverse lesion of the cord but the trouble was merely microscopic changes from the concussion, and these in time gradually subsided completely. *It took weeks and months in some of the cases, and* consequently one should not be in a hurry to operate under these circumstances, but wait to see if the spinal cord will not recuperate spontaneously. Necropsy in one case confirmed the microscopic character of the changes; although the injury was in the upper thoracic cord, the changes extended down into the sacral region. An operation had been attempted in this case about the second week and the patient died on the table. The microscopic changes had evidently reduced the resisting powers so that the man was unable to stand general anesthesia.

89. **Tetanus.**—Lewandowsky suggests that it might be well to inject antitetanus serum higher up in the spinal canal than is usually done, following Jonnesco's technic for high

spinal general anesthesia, puncturing in the cervical instead of the lumbar region.

92. **Cystinuria.**—Neumann reports a case of cystin concrements in the bladder and one case with cystin concrements in the kidney. The latter patient was a young woman who had always felt well until, two months before the operation, she complained of paroxysmal pains in the right lumbar region and the kidney could be palpated as a tender but not fluctuating tumor. A stone was evident on roentgenoscopy, convenient for pyelotomy. It weighed 2.21 gm. and its hardness and amber-like appearance disclosed its cystin nature. The urine had never shown anything macroscopically abnormal, but cystin crystals were found in it, and the patient seemed to be inconvenienced by the cystinuria as the pallor, languor and occasional pains persisted, occurring in both kidneys although roentgenoscopy failed to disclose any tendency to formation of new concrements. Various experimental diets were tried without material benefit. The other patient was a small boy from Russia; the stone was in the bladder and weighed 7.32 gm. (These cases have been published elsewhere and were mentioned in The Journal, January 16, p. 282.)

93. **Simplification of Agglutination Test.** — Liebermann announces that by drawing the blood direct into distilled water the corpuscles are at once destroyed, and the clear fluid resulting can be used just as well as the serum alone. He draws two drops of blood into 1 c.c. of distilled water. One drop represents about 0.05 c.c. serum and the dilution is about equivalent to 1 in 20. He adds to the limpid red fluid 1 c.c. of saline and continues diluting with different amounts of saline to make up 1 c.c. each time. Control tests with the ordinary technic confirmed in every respect the reliability of this simplification of the Widal test.

95. **To Get Rid of Vermin.**—Kisskalt describes various means for this purpose, advocating placing the clothing in an oven and heating to 70 C. (158 F.). This kills both lice and nits in ten minutes. As the nits are found mostly in the seams, they can be killed by passing the flame of a candle along the seams. They generally drop off at once. Nits are not killed by exposure to minus 5 C. (23 F.) over night. When the clothing cannot be taken off, the most reliable means to keep lice away seems to be to wear silken underwear, old silk shirts can be used for the purpose. Whether it is the smell of the silk, or that the lice cannot cling to silk—whatever the reason, he has found this the most certain of the measures that can be applied when it is impracticable to remove the clothing. Rubbing off the skin with benzin has proved effectual, but the so-called insect powders are of little use. He has seen lice crawling around for days in a box of unadulterated insect powder. Oil of fennel and oil of anise lose their strength soon and they destroy the appetite.

100. **Food of the Populace in War Time.**—Schwalbe comments on the various measures that have been taken to conserve the food supply. The consumption of protein and fats will have to be somewhat lower in comparison to the consumption of carbohydrates. Sugar is on hand in profusion and has not gone up in price. The directions which he gives and quotes from others are all in the line of pleas for economy and careful cooking. Persons in any land wishing to practice economy may get many useful hints from this article. One special point that has been brought into prominence by the war, he says, is the lack of training of girls in marketing, cooking, and utilizing the foodstuffs to the utmost. Girls should be systematically trained along these lines far more effectually than has been the case to date. He relates that even when the mistress of the household is ready and anxious to economize on foodstuffs, the servants often object. One housewife complains: "My maids would never think of throwing away a coin in the garbage. Even a penny would be carefully picked out of rubbish, but they think nothing of throwing away twenty times this amount in still usable food, and when the mistress complains the maids pack up and leave." This mistress declares that the only help will be for the authorities to declare martial law in each household. Schwalbe cites in full a number of circulars that have been published to aid the household in its menus, and reviews several books on the subject. He calls on the medical profession as inevitably the leaders in educating the public to economy and judicious use of foodstuffs.

Hanauer advocates drying kitchen refuse at central stations to make it suitable for a durable fodder. He states that cattle, hogs and poultry like and thrive on this dry fodder.

Medizinische Klinik, Berlin

January 24, XI, No. 4, pp. 89-120

101 Experiences with Gunshot Wounds of the Spinal Cord and Brain. (Schussverletzungen des Rückenmarks und Gehirns.) T. Rumpf.
102 Experiences with Gunshot Wounds of the Chest. (Brustschüsse.) J. Rotter.
103 *Superficial Lesions Tending to Cancer. (Vorstufen und Haftstatten primarer multipler Epitheliome.) G. Nobl.
104 Antigen Treatment of Typhoid. F. Ditthorn and W. Schultz.
105 Localization of Bullets in Bone. (Röntgenologische Ortsbestimmung bei Fremdkörpern im Knochen.) F. H. J. Krummacher.

103. **Forerunners of Multiple Epitheliomas.**—Nobl cites data from the literature to show the extreme rarity of multiple metastasis in the skin from cancer elsewhere. He also reviews what has been published on the connection between trauma and cancer of the skin. Röpke found a history of a single trauma in 11.3 per cent. of 1,748 cases of cancer of the face or scalp. Nobl relates further his experience with multiple primary and remote epitheliomas which had developed from senile warts, or from keratomas under chemical ray action, also a number of unusual cases of senile warts—benign epitheliomas—which under trauma or other influences assumed a malignant growth. One patient, a man of 63, developed in the course of two years innumerable warts on the head and trunk and some of them assumed a malignant type. Twenty of this kind have been excised to date, all verified by the microscope as cancer. Another patient of 70 has four epitheliomas at remote points but all on a basis of keratomas or warts. He gives illustrations of several in this group of eight cases of multiple cancers of the skin in the elderly. In a further group of seven cases he witnessed the development of Roentgen cancer on a keratoma. When cancer develops on a xeroderma the pathogenic rôle of the chemical rays is evident. Cancers on children are predominantly of this xerodema type.

Münchener medizinische Wochenschrift, Munich

January 26, LXII, No. 4, pp. 105-144

106 *The Cerebrospinal Fluid in Diagnosis. (Heutiger Stand der Liquordiagnostik.) V. Kafka.
107 Pneumococcus Peritonitis in Parturient. E. Wetzel.
108 Copper Salts in Treatment of Tuberculosis in Guinea-Pigs. (Wirkung der Kupferbehandlung auf das tuberkulöse Meerschwein.) Grafin von Linden.
109 *Habitual Rumination of Alleged Traumatic Origin. (Rumination als angebliche Unfallsfolge.) R. Wollenberg. Commenced in No. 2.
110 Prevention and Treatment of Freezing Injuries. (Erfrierungen im Felde.) P. L. Friedrich.
111 *Operative Mobilized Joints Stand Stress of Active Military Service. E. Payr.
112 *Improved Technic for Cultivation of Typhoid Bacilli. H. Koenigsfeld.
113 Bromin Chloroform as Inexpensive Substitute for Tincture of Iodin. (Vorschlag eines Ersatzes von Iodtinktur durch Bromchloroform in der Chirurgie, auf Grund experimenteller Versuche.) K. Feist.
114 *Drain for Abscess in Brain. (Zur operativen Behandlung der Hirn- und Ohrschüsse.) R. Barany.
115 *Orthopedic Treatment of Spasms after Wounds of the Head. H. v. Baeyer.
116 *Magnesium Sulphate in Tetanus. J. Schütz.
117 Prophylaxis of Venereal Disease. C. Bruck.
118 Hematomas and Aneurysms. A. Mueller.
119 Treatment of Compound Fractures. (Schienen- oder Gipsverbände bei den komplizierten Frakturen der Knochen und Gelenke?) G. Hohmann.
120 *The Heart Findings in the Wounded. (Herzbefunde bei Verwundeten.) M. Fischer.

106. **Diagnostic Reactions in the Cerebrospinal Fluid.**—Kafka has been comparing the findings in the cerebrospinal fluid with the various differential tests in vogue, as he describes in detail. The results have convinced him that none of them is decisive and hence that it is better to apply several. The findings with the goldsol test were so contradictory in his experience that the testimony with this test

should not be heeded unless it confirms that from the other tests. It is possible to apply a series of different tests with only a total of 7.5 c.c. of cerebrospinal fluid, namely, the cell count with 0.2 c.c.; the globulin test with 1.5 c.c.; the hemolysin and Wassermann test, 5 c.c.; the total albumin (Brandberg) 0.5 c.c. and the Pandy test with 0.04. These figures are the minimum, using a capillary pipet. With a mixer the maximum is twice the above figures. The findings with these tests, he says, throw light on the cerebrospinal fluid from all sides and explain the pathogenesis and the nature of the reactions themselves. He gives a chart of the findings in a typical case of general paresis before and after a first and a second intraspinal injection of salvarsan.

109. **Rumination as Alleged Result of Traumatic Injury.**—Wollenberg undertook extensive experimental research to study the nature of rumination as on his testimony was to depend the outcome of a claim for damages. True rumination is when the stomach muscle automatically contracts and forces its contents back into the esophagus. Certain persons are able to do this by their own volition—a spurious form of rumination.

111. **Outcome of Operative Mobilized Joints.**—Payr reports with pride that two cavalry officers have gone through the campaign to date without the least disturbance from the knee which he had previously operated on. He had mobilized the totally stiff joint and interposed a pad of fascia and fat. This has restored practically normal function to the joint even through the stress of the active campaign, which he regards as the severest test of his arthroplastics that can be imagined.

112. **Simplification of Technic for Revealing Typhoid Bacilli in Small Amounts of Blood.**—Koenigsfeld combines the enrichment, the growth on a solid medium and the differentiation—all in one procedure. Two kinds of culture medium are used, Endo's and the Drigalski-Conradi, but mannite is used in the latter instead of lactose. Bile is added to each tube and this, on top of the slanting solid medium, is inoculated with the blood. Only three or four drops of blood are required for each tube. The bile has a tendency to check the development of all except typhoid bacilli. In ten or fourteen hours the characteristic colonies have developed. The colon bacillus turns both tubes red; acid-forming cocci turn the Endo red but leave the mannite tube colorless, and the non-acid-forming leave both unchanged. Comparison with other technics confirms the reliability of this method while its results are obtained from ten to twenty-four hours earlier. Differentiation is also possible from the first growth of the bacilli, and they develop more luxuriantly than with other technics, and permit an early agglutination test.

114. **Drainage of Brain Abscess.**—Barany relates his discouraging experiences with suppuration following wounds in the brain until he learned to drain with a single narrow straight strip of rubber tissue. The abscess drains better and has better chances for healing when the head is kept up. He dresses it with the patient seated as the pressure in the brain is much lower when the head is up unless the brain is actually swollen. The change of position thus reveals whether the brain is swollen or not. By treatment on these principles he has saved four out of twenty men with abscesses in the brain; they are now healed and have had no trouble for several weeks, and a number of others are well on the road to recovery. In all his thirty-nine cases of wounds of the head, infection was already installed when they reached the hospital. In fourteen other cases the dura had not been injured and recovery was prompt in every case.

115. **Orthopedic Treatment of Spasmodic Contractions.**—Von Baeyer has been making a special study of spastic paralysis from various causes, and has found that an inelastic band around the limb has a marked effect in reducing the tendency to contracture. As the spasm seems to be the result of loss of inhibitions, he aims to reenforce what inhibiting power there is left. He assumes that the inhibition is started or directed by sensory impressions, and it is a familiar fact that the sensory perception of a movement in a muscle, the sensation of contraction, is much increased by having a band around the muscle. Whatever the explanation, he declares, the fact remains that a band about 3 cm. wide, an inelastic belt band, buckled around the limb, too loosely to affect the circulation, has a marked effect in reducing spasmodic contraction. He has never known it to fail in numerous cases of paralysis from various causes. A band around the waist between the crest of the ilium and the trochanter has proved useful likewise in treatment of disturbance in equilibration with lesions in the cerebellum or with multiple sclerosis.

116. **Magnesium Sulphate in Tetanus.**—Schütz has not had any experience with tetanus, but he calls attention to his experimental research on magnesium sulphate which demonstrated that the drug has a special influence on the heat regulating centers. In rabbits the temperature invariably dropped parallel to the action of the drug otherwise—it was not a consequence of its anesthetic action but a parallel manifestation. The symptoms of paralysis were invariably ushered in by a steeper drop of the temperature. These facts repeatedly confirmed on rabbits suggest that the temperature might prove in the same way in the clinic a sensitive and reliable index of the action of magnesium sulphate. By systematic temperature curves it may be possible to standardize the dosage of the drug according to the indications in the individual cases.

120. **Heart Findings Among the Wounded.**—The heart is regularly examined when the wounded reach the base hospital at Bingen, and signs of heart trouble were found in 51 of 131 patients who had never previously known of any cardiac or valvular anomalies. In 27 other cases there was a history of acute rheumatism, scarlet fever or valvular defect. The large number of abnormal findings among these picked men indicates that the trouble is the result of the stress of the campaign transiently weakening the heart.

Therapeutische Monatshefte, Berlin

January, XXIX, No. 1, pp. 1-64

121 *Medical Memories of Franco-Prussian War, 1870. (Kriegsmedizinische Erinnerungen.) O. Heubner.
122 *Operations on the Thymus and Their Effects on the Organism. H. Klose.
123 *Obesity and Its Treatment. (Fettleibigkeit.) C. von Noorden.
124 Vaccines and Serums. (Impfstoffe und Heilsera.) P. Ehrlich and H. Sachs.

121. **War Memories.**—Heubner recalls his experiences at a hospital in Leipzig during the war of 1870 where hundreds of sick and wounded soldiers were in his charge. Typhoid and dysentery cases formed about 25 per cent. of the total. Another frequent syndrome was that of extreme myasthenia, the muscles so weak as to be practically beyond control, as if paralyzed, while the slightest contact was painful. The gradual development of the myasthenia was preceded by total lack of appetite. When the anorexia could be conquered, the men soon regained normal health. He ascribes the condition to the exhaustion of the muscles from overexertion without proper nourishment and rest. A number of the men were sent to the hospital with the diagnosis of lung, liver or stomach trouble on account of persisting pain but nothing organically wrong could be found except a long stripe of extreme tenderness with severe pain on pressure. Pressure from some strap finally explained all these cases.

122. **Operations on the Thymus.**—Klose remarks that to date little is known of the clinical consequences of thymus deficiency, but hyperplasia of the thymus has come into prominence as a factor in exophthalmic goiter, some having found the thymus enlarged in up to 90 per cent. of their cases. Crotti has reported two cases of exophthalmic goiter in which the patients succumbed to mechanical pressure from their large thymus. To date, Klose says, no case of exophthalmic goiter is known in which a complete cure followed an operation on the thymus alone. Enlargement of the thymus may be shown by the Roentgen rays, and myasthenia is further a symptom of abnormal thymus functioning. The patients feel so weak in the knees that they fear they will fall. No instance is known in which an operation on the thyroid alone abolished these myasthenic phenomena.

Since 1910, of the 130 cases of exophthalmic goiter given operative treatment at his clinic 8 patients died the "thymus death" which he thinks would not have happened if the thymus had been resected with the thyroid. The postoperative reaction after the dual operation is minimal in comparison to that after an operation on the thyroid alone. The patients are given a one or two weeks' course of treatment beforehand, dietetic, medicinal and psychic. The goiter and heart are kept covered with ice. The operation is done under local anesthesia. Tumors in the thymus alone have been known to induce Basedow symptoms. In some cases of thymus tumor, myasthenia was the principal symptom, and this suggests investigation of and possibly an operation on the thymus in treatment of myasthenia. As a rule, to date, myasthenic patients never get to the surgeon but die in the hands of neurologists or internists. Hemorrhage in the thymus of new-born babes is not rare but there are probably hemorrhages elsewhere from the same cause, the birth trauma. Metastatic suppuration is liable to occur in the thymus after scarlet fever, diphtheria, erysipelas and smallpox, but it is most common after measles. Umbilical infection is also liable to metastasis in the thymus. The prognosis is grave but one successful operative case has been reported.

123. **Obesity.**—Von Noorden emphasizes the necessity for distinguishing between obesity due to overeating or laziness and obesity for which some constitutional cause is responsible, as treatment varies widely with the factors involved. In the exogenous type, overeating and lack of exercise may combine to induce the obesity; the tendency to overeat and to refrain from exercise may be due to abnormal instincts, possibly the result of reflexes perverted from normal by some chemical influence. It is usually possible in time to train these instincts into normal routes. Reasoning, compulsion and psychic measures are usually necessary, in addition to diet and exercise, in these cases. The other type of obesity, the endogenous, constitutional type, he regards as traceable to abnormal thyroid functioning. Congenital or acquired weakness or degeneration of the thyroid may induce the obesity directly or the thyroid may become a factor in the obesity only secondarily, as in case of pancreas disease (demonstrated only experimentally as yet); disease in the ovaries or testicle (deficiency of the interstitial substance); disease in the pituitary body (adiposo-genital dystrophy); disease in the pineal gland or thymus (both dubious). There may also be a combination of both the exogenous and endogenous type, especially in the young.

Throughout the endogenous forms, abnormal thyroid functioning is common to all, and treatment of constitutional obesity must be based on thyroid treatment. It is unquestionable now that the reliance on thyroid treatment is increasing, the dread of it diminishing. The dangers from thyroid treatment are just as great as ever, but we know better how to watch out for them and guard against them. He adds that even in cases amenable to systematic dietetic measures alone, the prolonged restriction of the diet seems to him more of an evil than a course of thyroid treatment. With this the diet need not be so strictly regulated and the effect of the thyroid treatment is often permanent, so that the patients can eat like other people afterward without bringing back the obesity. During the thyroid course ample provision of albumin should be ensured. The urine should be examined often for sugar. The tendency to acceleration of the heart action and drop in blood pressure can be warded off by daily small doses of some digitalis preparation.

Thyroid treatment is not required in the exogenous type of obesity, diet and exercise answer all the purposes, and without training in this line the obesity will return whether thyroid treatment has been taken or not. Apparatus reduce obesity by electric contractions in the muscles are ridiculed by von Noorden as unable to induce any appreciable effect on the oxidation processes beyond the effect of suggestion. In conclusion he urges physicians to keep up a constant warfare against the "patent medicines" advertised to cure various ills, and especially the obesity cures, as they are by no means harmless remedies. In this connection he pays tribute to the "instructive pamphlets on nostrums published by the American Medical Association." He gives no details of his technic for thyroid treatment beyond the above.

Therapie der Gegenwart, Berlin

February, LVI, No. 2, pp. 41-80

125 *Exanthematous Typhus. (Zur Diagnose und Prophylaxe des Fleckfiebers.) G. Klemperer and W. Zinn.
126 Efficiency of Combined Treatment with Diathermia and Ultraviolet Rays. F. Mendel.
127 Roentgenology in War. M. Cohn.
128 Treatment of Inherited Syphilis. A. Baginsky. Commenced in No. 1.

125. **Exanthematous Typhus.**—Klemperer and Zinn give the details of the recent fatal typhus of Dr. Jochmann, the chief authority on typhus in Germany, and they expatiate on the lessons learned therefrom. The old idea that typhus is extremely contagious to young and old has been shorn of its terror as experience has demonstrated—and especially in Jochmann's case—that a thoroughly bathed and cleanly attired typhus patient does not breed new cases. No case developed among the several physicians, the nurses or the members of the family, wife and children, all in close attendance on Jochmann. He had attended several prisoners sick with typhus and also his assistant, without contracting the disease. Then he made a visit of inspection to a camp of Russian prisoners where there were numerous cases of typhus. The mattresses lay close together, with only narrow aisles between, and lice abounded everywhere. They could be seen crossing the aisle. He had supposedly prepared to ward off vermin, wearing two pairs of stockings and high boots; all he had on was discarded immediately afterward and he took a full bath rubbing well with soap.

He was not aware of any vermin having got on him, but the disease developed the tenth day thereafter. Roseola appeared faintly the sixth day but subsided the seventh. The ninth day it returned, with a petechial character and death occurred the eleventh day. The symptoms long were merely those of any severe general illness of a septic or typhoid type. The negative bacteriologic findings and the petechial roseola finally confirmed the diagnosis. Experiences are accumulating that typhus patients free from vermin can share the bed of other patients or the healthy without transmitting the disease. Lice cannot bear heat and are killed off in a bath of 35 C. (95 F.) and upward.

Wiener klinische Wochenschrift, Vienna

January 28, XXVIII, No. 4, pp. 85-112

129 Vaccine Therapy of Typhoid. A. v. Koranyi.
130 *Micro-Organic Changes from Shell Explosions. (Ueber den sogen. Nervenshock nach Granat- und Schrapnellexplosionen.) A. v. Sarbo.
131 *Arteriotomy for Embolism. D. Pupovac.
132 Roentgen Differentiation of Gas Phlegmons. G. Schwarz.

130. **The So-Called Nervous Shock from Shell Explosions.**—Von Sarbo discusses the commotion caused in the brain tissues and fluids by explosion of a shell nearby, and describes two typical sets of symptoms which he has had occasion to observe in the base hospitals. The cause seems to be something more than merely molecular changes and yet it is not severe enough to be an actual organic injury. He regards it as the result of micro-organic changes, and if the subjects are kept quiet long enough the condition rights itself. The two syndromes to which he refers are brought on only by physical, never by emotional causes, and they cannot be influenced by psychic measures. They vary with the seat of the micro-organic changes and they are frequently mistaken for simulation or hysteria. All that is needed is complete rest. Frequent examinations and trying one therapeutic measure after another are harmful and are liable to breed a superposed hysteria.

131. **Arteriotomy for Embolism.**—Pupovac extracted an embolus from the femoral artery on one side and then not long after had to do the same operation on the other. Each time the embolus was easily extracted and the continuity of the artery restored. It straddled the bifurcation at the mouth of the deep femoral. The patient was a man of 25 and he succumbed a few months later to the progress of his endocarditis. The *Streptococcus viridans* was found in

both emboli. The first embolus was extracted sixteen hours after the first signs of its presence; the interval with the second embolus was only five hours, and there had been no time for thrombi to form. In the first artery the repair was less perfect, and there had evidently been thrombosis in a communicating branch artery. The age of the patient is an important element in the prognosis. The necropsy findings in the second artery showed surprisingly complete repair.

Zentralblatt für Gynäkologie, Leipzig

January 30, XXXIX, No. 5, pp. 65-80

133 Glycogen Content of Uterine Mucosa. (Glykogengehalt der Uterusschleimhaut.) Aschheim.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 28, XXXVI, No. 8, pp. 113-128

134 *Symptoms from Metastasis of Cancer in the Mediastinum. (Sindrome mediastinica da metastasi neoplasica.) G. Manara.

January 31, No. 9, pp. 129-144

135 *Intravenous Injection of Mercuric Chlorid in Treatment of Acute Articular Rheumatism. V. Martone.
136 *Treatment of Aneurysms. E. Maragliano.

134. **Metastasis in the Mediastinum of Cancer.**—Manara's patient was a man of 25 and the symptoms suggested to a certain extent pleuritis with effusion, pericarditis, or a syphilitic or tuberculous process in the lung, but each of these could be excluded in turn on account of the absence of certain features. The diagnosis was therefore narrowed down to a tumor in the mediastinum, and it was learned that a cystosarcoma had been removed nearly a year before from the muscles near the left margin of the sternum. Mechanical compression from the metastatic tumor explained the edema of the face and neck, the thrombophlebitis of the left upper arm, the retrosternal dulness and dyspnea.

135. **Intravenous Injection of Bichlorid in Acute Rheumatism.**—Martone reports five extremely severe cases in which salicylic medication failed to influence the clinical picture or caused symptoms of intoxication so serious that it had to be discontinued. As a last resort he turned to mercuric chlorid and gave it by intravenous injections in doses from 1 to 5 mgm., repeated every day or so well into convalescence. All the patients given this treatment recovered, and none has shown any evidence of a return of joint trouble since. Only one was left with a slight valvular defect; in the others the endocarditis, if such existed, seemed to be completely cured. He gave ten injections in one case, beginning with 2, 3 and 4 mgm., and increasing to 5 mgm. toward the end. In another three injections seemed to conquer the disease but he continued with three more on alternate days to make sure of the result. In another case no benefit was apparent under salicylates for a month, and then five injections of the mercuric chlorid were given and the cure was soon complete. He followed Baccelli's technic in every particular.

136. **Treatment of Aneurysm.**—Maragliano says that in a certain percentage of cases it may be possible to overcome the effects of an aneurysm and induce a clinical cure by the treatment he outlines. It consists chiefly in strict bed rest, reduction of the diet to four small meals a day without fluids; only 300 c.c. of fluids are permitted in the twenty-four hours. Venesection may be necessary and ice to the region of the aneurysm, with local injections of ergot around the aneurysm and injection of gelatin into the buttocks, with potassium iodid internally.

Pediatria, Naples

February, XXIII, No. 2, pp. 81-160

137 *Tartar Emetic in Internal Leishmaniosis. G. di Cristina and G. Caronia.
138 Blue Spot on Abdomen. (Macchie mongoloidi a sede sulla superficie ventrale del corpo.) O. Cozzolino.
139 Digestion of Casein in Infant's Stomach. G. Finizio.
140 Pernicious Anemia in Three Infants. R. K. Marinucci.
141 Tardy Deformed Growth of the Long Bones in Child of 2½ with Inherited Syphilis; Retrogression to Normal under Specific Treatment. O. Pentagna.
142 Tuberculous Polyserositis. (Caso di cirrosi cardio-tubercolare con tuberculomi cerebrali.) S. de Stefano.
143 Ulceration in Stomach and Duodenum under Experimental Pyrodin Anemia. A. Corica.

137. **Tartar Emetic Cures Internal Leishmaniosis.**—Antimony and potassium tartrate has displayed considerable curative power in Oriental sore and ozena, and this suggested its use in internal leishmaniosis. Di Cristina and Caronia have applied it in ten cases and the successful outcome justifies, they assert, that tartar emetic must be regarded as the specific remedy for internal leishmaniosis. The mortality in Italy is high, Jemma reporting it at 93 per cent. while Caronia found it 86 per cent. in seventy-eight cases. Recovery is rarer the younger the patient. Di Cristina found the mortality 93 per cent. under 2 years of age but only 87 per cent. in older children, in his experience with 130 cases at Palermo and Naples. This high average mortality renders most significant the fact that all recovered but one of the eight children given a systematic course of the tartar emetic, especially as all were only from 5 to 27 months old except one boy of 6.

The antimony and potassium tartrate was given by intravenous injection in a 1 per cent. solution in redistilled water. The course of treatment ranged from ten to forty days and the total amount of the drug was from 0.06 to 0.84 gm. When the disease has reached its last stage the organism is unable to recuperate even if all the micro-organisms are destroyed. One child died from nephritis. He had been given large doses of the tartar emetic from the start, from 0.04 to 0.08 gm. and although the leishmaniosis subsided fatal kidney trouble developed. After this experience the dosage was changed, and the course was started with small doses, watching the effect and gradually increasing until a total of 0.25 gm. had been given in five injections in three weeks in one case; in another 0.35 gm. in ten injections in forty days. By this gradual tentative dosage it is possible to detect at once any injurious influence on the kidneys.

Riforma Medica, Naples

January 30, XXXI, No. 5, pp. 113-140

144 Conditions that Favor Precipitation of the Cholesterin in the Bile. (Contributo alla patogenesi della calcolosi biliare.) L. d'Amato.

Hygiea, Stockholm

LXXVII, No. 1, pp. 1-47

145 *Transpleural Resection of the Cardia and Esophagus for Cancer; Two Cases. J. Borelius.
146 *Successful Extraction of Embolus in Brachial Artery. R. Lundmark.

145. **Transpleural Resection of the Lower Esophagus.**—Borelius attempted this operation in five cases but found conditions inoperable in all but two. These patients were men of 46 and 60 and he was able to do the resection in both but neither patient survived, one dying in collapse the eighteenth hour, the other succumbing soon to pneumonia. He applied the technic with which Torek has reported a successful case, and considers that the history of this one successful case justifies the attempt in these otherwise doomed cases if the patient is informed as to the risks and is willing to take them.

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ROCHESTER, MINN.

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Injuries to the third portion of the duodenum may occur during right nephrectomy. In a previous communication I[1] reported three such cases. The injury is most apt to occur in the attempt to secure the pedicle for the purpose of ligation, and is especially liable to happen when the pedicle is greatly infiltrated with inflammatory products and fixed in close relationship with the duodenum. Under such circumstances, the vascular pedicle of the kidney may slip from the retaining forceps or ligature during attempts at ligation. Efforts to grasp with toothed forceps the bleeding vessels in the bottom of the wound may result in the duodenal injury. The perforation follows after some days due to necrosis of the devitalized portion of the duodenum.

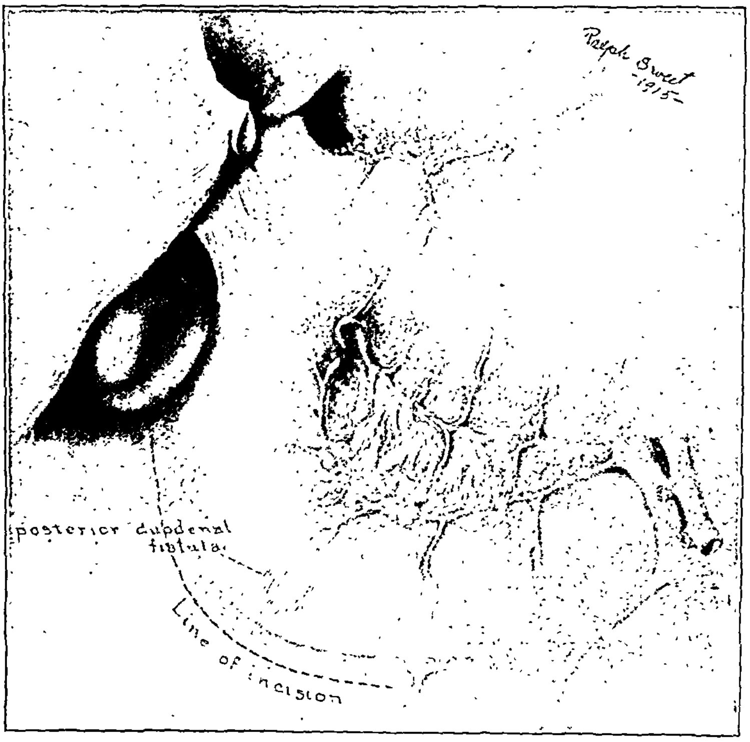

Fig. 1.—Site of duodenal fistula on posterior wall of duodenum, showing line of incision through peritoneum.

All the patients reported on in my first communication died within three weeks from the date of the injury as the result of rapid failure of nutrition. At that time I advised that no attempt be made to close the fistula from behind and that no time be wasted with the expectation of spontaneous closure of the fistula. Instead, as soon as the diagnosis should be established, the abdominal cavity should be opened through the anterior abdominal wall, the peritoneum incised to the right of the curve in the duodenum, the duodenum itself elevated from its retroperitoneal bed at its outer side and the duodenal opening closed directly by suture. Of the three cases reported, in two the duodenal injury occurred at the primary operation and in one it was secondary. In this latter case the physician in charge of the after-care of the patient used a sound to explore a sinus which formed following the nephrectomy and, since the duodenal fistula appeared immediately after the sounding, it was thought that during the manipulation the sound was plunged directly into the duodenum. The case herewith reported belongs to the latter type of injury.

Case 108397.—H. C. H., a man, aged 46, was admitted to the clinic June 17, 1914. Roentgen-ray examination revealed a single stone in the left kidney and multiple stones in the right kidney. Cystoscopic and ureteral examination showed slightly infected urine and moderately diminished function in the left kidney, while a pyonephrosis with destruction of function was evident in the right kidney. It seemed advisable first to remove the stone from the left kidney, thus restoring it to good function, and to remove the right kidney at a second operation. On June 30, 1914, pelviolithotomy was done and a stone removed from the left renal pelvis. The patient made an excellent recovery from this operation and on Aug. 26, 1914, the right kidney was removed.

Both operations were done through posterior lateral incisions. The wound in the left side healed primarily and was sound before the right nephrectomy was undertaken. On the right side there was primary union; but during the fourth week, without premonitory symptoms, a sinus formed in the wound and continued until the date of reexamination on Jan. 4, 1915. The history showed that when the sinus first formed it caused comparatively little inconvenience, but later both emboli. The first embolus was extracted sixteen hours after the first signs of its presence; the interval with the second embolus was only five hours, and there had been no time for thrombi to form. In the first artery the repair was less perfect, and there had evidently been thrombosis in a communicating branch artery. The age of the patient is an important element in the prognosis. The necropsy findings in the second artery showed surprisingly complete repair.

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[1] Mayo, W. J.: Accidental Injuries to the Descending Portion of the Duodenum During Removal of the Right Kidney, The Journal A. M. A., Jan. 31, 1914, p. 343.

Zentralblatt für Gynäkologie, Leipzig

January 30, XXXIX, No. 5, pp. 65-80

133 Glycogen Content of Uterine Mucosa. (Glykogengehalt der Uterusschleimhaut.) Aschheim.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 28, XXXVI, No. 8, pp. 113-128

134 *Symptoms from Metastasis of Cancer in the Mediastinum. (Sindrome mediastinica da metastasi neoplasica.) G. Manara.

January 31, No. 9, pp. 129-144

135 *Intravenous Injection of Mercuric Chlorid in Treatment of Acute Articular Rheumatism. V. Martone.
136 *Treatment of Aneurysms. E. Maragliano.

134. **Metastasis in the Mediastinum of Cancer.**—Manara's patient was a man of 25 and the symptoms suggested to a certain extent pleuritis with effusion, pericarditis, or a syphilitic or tuberculous process in the lung, but each of these could be excluded in turn on account of the absence of certain features. The diagnosis was therefore narrowed down to a tumor in the mediastinum, and it was learned that a cystosarcoma had been removed nearly a year before from the muscles near the left margin of the sternum. Mechanical compression from the metastatic tumor explained the edema of the face and neck, the thrombophlebitis of the left upper arm, the retrosternal dulness and dyspnea.

135. **Intravenous Injection of Bichlorid in Acute Rheumatism.**—Martone reports five extremely severe cases in which salicylic medication failed to influence the clinical picture or caused symptoms of intoxication so serious that it had to be discontinued. As a last resort he turned to mercuric chlorid and gave it by intravenous injections in doses from 1 to 5 mgm., repeated every day or so well into convalescence. All the patients given this treatment recovered, and none has shown any evidence of a return of joint trouble since. Only one was left with a slight valvular defect; in the others the endocarditis, if such existed, seemed to be completely cured. He gave ten injections in one case, beginning with 2, 3 and 4 mgm., and increasing to 5 mgm. toward the end. In another three injections seemed to conquer the disease but he continued with three more on alternate days to make sure of the result. In another case no benefit was apparent under salicylates for a month, and then five injections of the mercuric chlorid were given and the cure was soon complete. He followed Baccelli's technic in every particular.

136. **Treatment of Aneurysm.**—Maragliano says that in a certain percentage of cases it may be possible to overcome the effects of an aneurysm and induce a clinical cure by the treatment he outlines. It consists chiefly in strict bed rest, reduction of the diet to four small meals a day without fluids; only 300 c.c. of fluids are permitted in the twenty-four hours. Venesection may be necessary and ice to the region of the aneurysm, with local injections of ergot around the aneurysm and injection of gelatin into the buttocks, with potassium iodid internally.

Pediatria, Naples

February, XXIII, No. 2, pp. 81-160

137 *Tartar Emetic in Internal Leishmaniosis. G. di Cristina and G. Caronia.
138 Blue Spot on Abdomen. (Macchie mongoloidi a sede sulla superficie ventrale del corpo.) O. Cozzolino.
139 Digestion of Casein in Infant's Stomach. G. Finizio.
140 Pernicious Anemia in Three Infants. R. K. Marinucci.
141 Tardy Deformed Growth of the Long Bones in Child of 2½ with Inherited Syphilis; Retrogression to Normal under Specific Treatment. O. Pentagna.
142 Tuberculous Polyserositis. (Caso di cirrosi cardio-tubercolare con tuberculomi cerebrali.) S. de Stefano.
143 Ulceration in Stomach and Duodenum under Experimental Pyrodin Anemia. A. Corica.

137. **Tartar Emetic Cures Internal Leishmaniosis.**—Antimony and potassium tartrate has displayed considerable curative power in Oriental sore and ozena, and this suggested its use in internal leishmaniosis. Di Cristina and Caronia have applied it in ten cases and the successful outcome justifies, they assert, that tartar emetic must be regarded as the specific remedy for internal leishmaniosis. The mortality in Italy is high, Jemma reporting it at 93 per cent. while Caronia found it 86 per cent. in seventy-eight cases. Recovery is rarer the younger the patient. Di Cristina found the mortality 93 per cent. under 2 years of age but only 87 per cent. in older children, in his experience with 130 cases at Palermo and Naples. This high average mortality renders most significant the fact that all recovered but one of the eight children given a systematic course of the tartar emetic, especially as all were only from 5 to 27 months old except one boy of 6.

The antimony and potassium tartrate was given by intravenous injection in a 1 per cent. solution in redistilled water. The course of treatment ranged from ten to forty days and the total amount of the drug was from 0.06 to 0.84 gm. When the disease has reached its last stage the organism is unable to recuperate even if all the micro-organisms are destroyed. One child died from nephritis. He had been given large doses of the tartar emetic from the start, from 0.04 to 0.08 gm. and although the leishmaniosis subsided fatal kidney trouble developed. After this experience the dosage was changed, and the course was started with small doses, watching the effect and gradually increasing until a total of 0.25 gm. had been given in five injections in three weeks in one case; in another 0.35 gm. in ten injections in forty days. By this gradual tentative dosage it is possible to detect at once any injurious influence on the kidneys.

Riforma Medica, Naples

January 30, XXXI, No. 5, pp. 113-140

144 Conditions that Favor Precipitation of the Cholesterin in the Bile. (Contributo alla patogenesi della calcolosi biliare.) L. d'Amato.

Hygiea, Stockholm

LXXVII, No. 1, pp. 1-47

145 *Transpleural Resection of the Cardia and Esophagus for Cancer; Two Cases. J. Borelius.
146 *Successful Extraction of Embolus in Brachial Artery. R. Lundmark.

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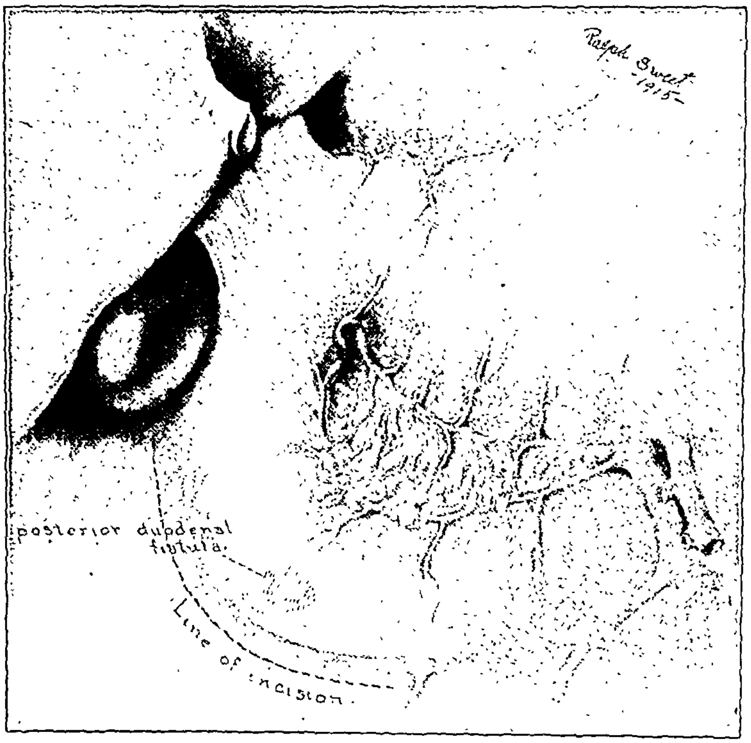

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[1] Mayo, W. J.: Accidental Injuries to the Descending Portion of the Duodenum During Removal of the Right Kidney, The Journal A. M. A., Jan. 31, 1914, p. 343.

On Jan. 6, 1915, under ether anesthesia, I enlarged the sinus sufficiently to introduce a finger into the cavity which was of considerable size and quite unlike the ordinary drainage cavity due to sepsis. The space was rather soft and indefinite and there was no apparent retention of secretion in the cavity. A strip of iodoform gauze was placed through the opening. No instrument of any kind was introduced into the cavity. On January 7 there was a very considerable discharge of light yellowish fluid. January 8 the piece of gauze was removed and there was an abundant discharge of bile, pancreatic and duodenal secretion and some particles of food. It was evident that there was a duodenal fistula in the retroperitoneal portion of the duodenum (Fig. 1) but how produced was a mystery.

The patient was at once taken to the operating room, the abdomen opened by an incision through the middle of the upper right rectus muscle, the hepatic flexure and transverse colon drawn down, the liver and gall-bladder up, and an incision made through the peritoneum to the outer side of the duodenum, beginning at the level of the papilla of the common duct and extending around well to the spine. The duodenum was carefully dissected from its posterior attachments until the fistula, which was of sufficient size to admit the end of the finger, was completely separated and exposed in the wound (Fig. 2). The fistula was sutured transversely with chromic catgut and interrupted fine silk, the omentum drawn over the sutured duodenum and the tip passed into the posterior opening from which the fistula had been separated, and attached in position with a few catgut sutures. A rubber-tissue drain was introduced through the sinus opening into the posterior cavity. The operation took but a few minutes and was remarkably easy. The patient made an uninterrupted recovery.

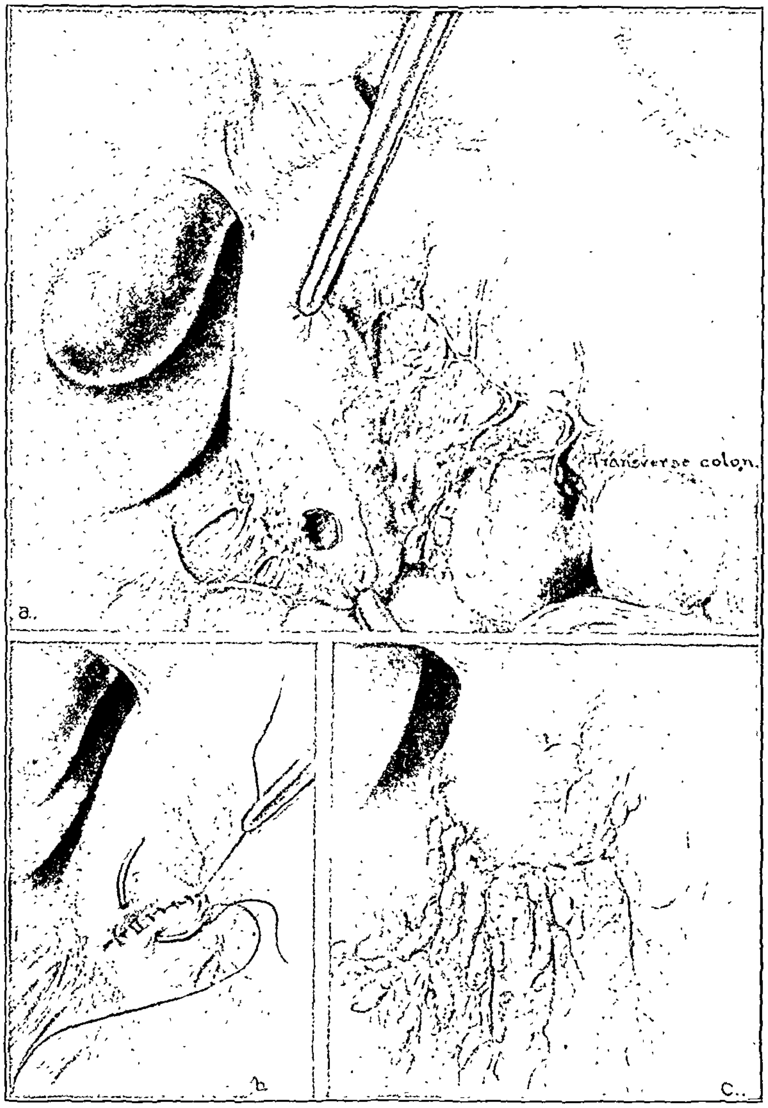

Fig. 2.—Procedure in repair of fistula; *a*, fistula opening dissected from posterior attachment and brought into view; *b*, suturing of fistula; *c*, protecting sutured area with omental graft.

This case brings up the very interesting question: What was the cause of the fistula? The original nephrectomy was subcapsular, and certainly no direct injury to the duodenum occurred during the operation, or the fistula would have developed at once. The fistulous opening on the inner posterior aspect of the duodenum extended well up into the edge of the pancreas, as shown by the operation for its closure. It is probable that chronic infection existed in the pedicle at the time of the nephrectomy and this infected area led to localized necrosis in the margin of the head of the pancreas, and the curious nature of the cavity and its discharge was the result of a little pancreatic secretion in connection with the necrosis. The injury at the time of the exploration certainly could not have been inflicted directly on the duodenum, since, at the time of the closure of the fistula, with the right hand in the abdomen, the first finger introduced through the posterior wall of the abdomen into the cavity and the left forefinger introduced through the lumbar sinus could not be made to meet. It is evident, therefore, that this condition existed as the result of some slow infection, and, in the manipulation, separation of a necrotic area in the duodenum was indirectly brought about.

The transperitoneal approach to the fixed portion of the duodenum has been advised, although in my somewhat superficial examination of the literature I did not find any reported cases of duodenal injury during right nephrectomy. Nevertheless, I am sure that these injuries have occurred, but the seat of the fistula's opening has not been recognized as being duodenal.

Summers[2] treated a gunshot injury in the retroperitoneal part of the duodenum by the transperitoneal route and gave an excellent summary of the somewhat scanty literature which existed at that time.

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[2] Summers, J. E.: The Treatment of Posterior Perforations of the Fixed Portions of the Duodenum, Ann. Surg., 1904, xxxix, 727-732.

Kanavel,[3] in a careful study of the method of approach to this portion of the duodenum, a method which he used for traumatic rupture, brings the literature up to date. He advised that attack be made from below the colon through the inferior layer of the transverse mesocolon, and this undoubtedly is wise when that portion of the duodenum is injured which lies over the spine toward the duodenojejunal angle. For this particular injury, however, the method of approach from above the transverse colon is so easy and satisfactory that I think it will be the method of choice in such cases. Considerable movability is possessed by this part of the duodenum, its blood supply and fixed portion lying against the pancreas on the inner side to the left, so that almost its whole circumference can be brought into view through this incision.

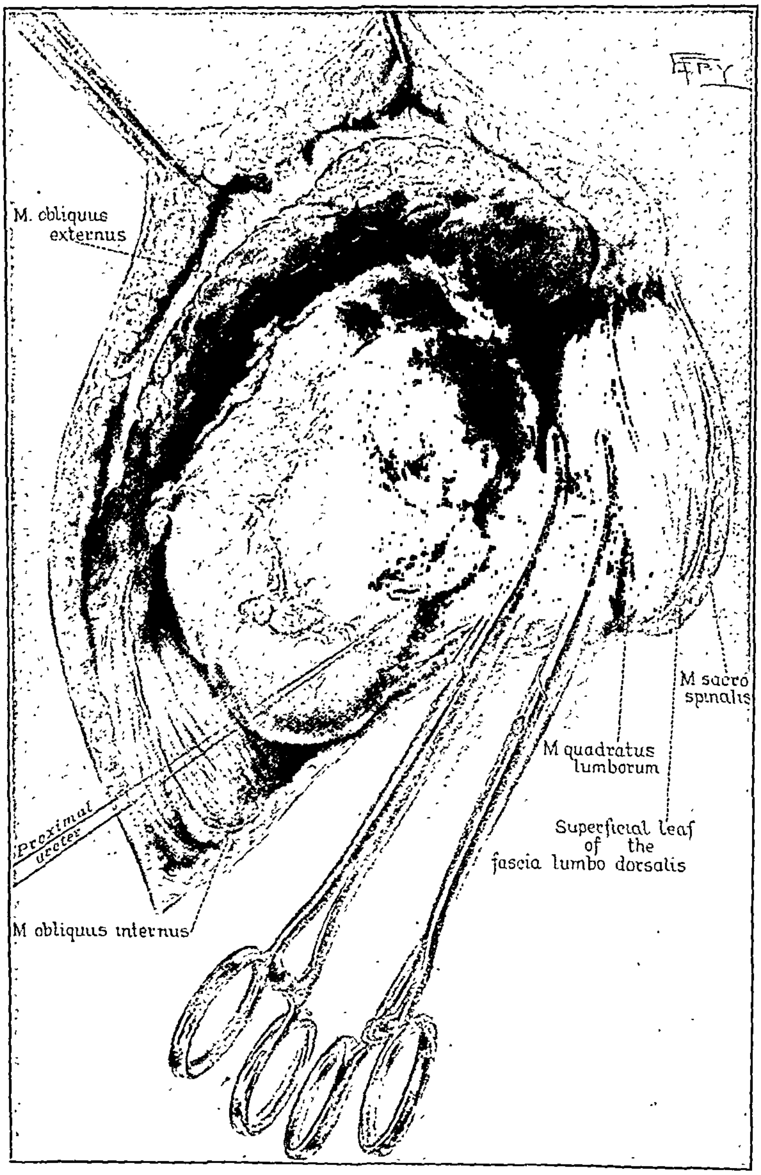

Fig. 3.—Kidney drawn up with two clamps in position; ureter dissected well up to pelvis and hilum of kidney.

II. THE TWO-FORCEP METHOD FOR THE LIGATION OF VASCULAR PEDICLES WITH SPECIAL REFERENCE TO NEPHRECTOMY

In the sixteenth century, Ambrose Paré, the Huguenot physician of Catharine de Medici, first applied the ligature to check hemorrhage, and the ligature still remains the method of choice as a means of controlling hemorrhage. One might suppose that experience for nearly 400 years with this effective device would have resulted in a technic nearly perfect, but this is far from the truth. To-day, the most common avoidable cause of death following surgical operations is the effect of hemorrhage, although deaths on the operating table directly from this cause are rare. The most common cause of so-called surgical shock is collapse from loss of blood, and traumatism of important structures in hasty attempts to control hemorrhage. Secondary shock usually means a bleeding vessel overlooked at the time of operation, vessels improperly ligated which commence to bleed after the patient has been placed in bed and the normal vascular tonus has been restored, or massive sepsis from a viscus injured in controlling hemorrhage. Any hospital that is not securing a high percentage of necropsies following surgical fatalities will have a number of unexplained deaths in which, directly or indirectly, hemorrhage is the cause, although not suspected. The surgeon whose work is not checked by necropsies in deaths following his operations usually has many ingenious explanations as to the cause of death, explanations which may appear reasonable and scientific and which occasionally may be correct.

At present, in our clinic, necropsies are secured in more than 90 per cent. of all deaths. Either the operating surgeon or the first assistant is present at the necropsy. Thus we secure an enormous amount of information, much of it humiliating to the surgeon and much of it concerning failure of hemostasis.

People die from very real things. When I hear of some surgical fatality explained in some abstruse theoretic manner, I suspect that a post-mortem was not made or, if made, that it was done by a pathologist not competent to judge of the conditions present. For this reason I should urge that the post-mortem shall be held by a competent pathologist who is interested in getting at the facts rather than in endeavoring to conjure up excuses for the surgeon, and that by all means the operating surgeon or his first assistant shall take part in the post-mortem or at least be present. The surgeon should discuss necropsy findings in his clinic, so that by example and precept other lives may be saved. In no other way can he so well atone for his shortcomings. As Lincoln said in his Gettysburg address: "These dead shall not have died in vain."

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[3] Kanavel, A. B.: Mobilization of the Duodenum, Surg., Gynec. and Obst., April, 1914, p. 484.

Internal hemorrhage, especially in the abdomen, is not always classical in its symptoms. The blanching, restlessness, air-hunger, subnormal respiration, and increasing rapidity of pulse may not be prominent features. If the hemorrhage is somewhat slow, the patient may not die for several days. Again, the hemorrhage may not be of itself lethal, but may be responsible for a later sepsis by furnishing a culture medium for a few germs which may have been present and which the tissues otherwise might have been capable of destroying. For this reason any improvement in the technic of hemostasis, however small, has a value even though it only keeps our attention constantly directed toward the necessity for reliable hemostasis.

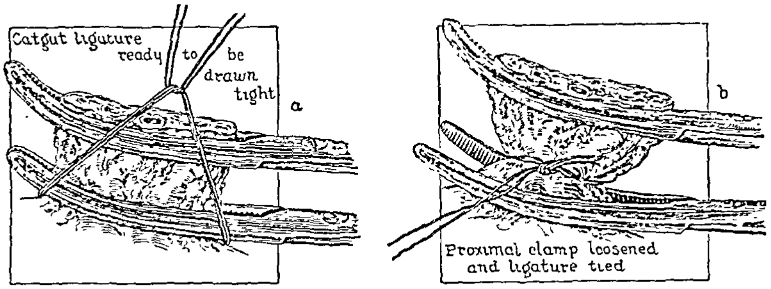
Catgut ligature ready to be drawn tight
a
b
Proximal clamp loosened and ligature tied

Fig. 4.—Method of procedure in two-forcep ligation of pedicle.

In the attempt to tie a deeply placed pedicle it occasionally slips out of the grasp of the ligature, permitting rapid and exhausting hemorrhage. This is especially true of the pedicle of the kidney. The surgeon reaches in with forceps and with considerable difficulty, in a pool of blood, succeeds in grasping the vessels. Forceps used in this way are dangerous. In these hurried attempts, if the operation be a right nephrectomy, the vena cava or the retroperitoneal portion of the duodenum may be injured. Vessels the size of the renals can be easily caught and held with the fingers. The spurting of blood leads the fingers directly to the vessels, and forceps can then be applied with care and circumspection.

If the two-clamp method be used for the purpose of ligation, slipping of the pedicle should not occur. The kidney is first exposed through an appropriate incision, such as the posteriolateral which I have previously described.[4] The perirenal fat is separated, the ureter divided between ligatures and the ends sterilized. Forceps should not be left on the portion of the ureter which is to be removed with the kidney, as they may slip or tear off and the wound be soiled from the contents of the renal pelvis. The fragment of ureter to be removed should be dissected well up to the pelvis of the kidney that it may not be tied into the vascular pedicle. The vascular pedicle is now exposed by careful removal of its surrounding fat (Fig. 3). In many cases the vessels can be ligated separately, but if the pedicle is thick and deeply placed, or if the operation be a subcapsular nephrectomy, two forceps are placed on the proximal side, if possible about ¾ inch apart, and the kidney cut away. A ligature is then thrown around the pedicle beneath the deeper pair of forceps. This pair of forceps is removed so that the ligature slides into the groove made by the forceps and is tied, while the pedicle itself is still safely retained in the distal forceps (Fig. 4). A second ligature can then be placed and the distal forceps removed as the knot is pulled tight. Mass ligation of this type, theoretically, is not as good as ligation of the separate vessels; but if sepsis or tuberculosis is present, direct ligation of each vessel cannot be accomplished so safely. If done blindly, the renal veins may be penetrated and thus, if the wound has been soiled, sepsis or tuberculous infection may be carried *directly into the vein. In* our early experience there was one death from general septicemia and one from acute miliary tuberculosis for which I believe direct venous infection from the needle carrying the ligature was responsible.

The two-forcep method is especially applicable in nephrectomy and splenectomy. In the latter operation, care should be taken that the tail of the pancreas does not extend up into the hilum of the spleen; if so, it must be dissected out before the clamps are placed in position.

Thus far I have succeeded in using the two-forcep method on the renal pedicle. In some other situations only a single pair of forceps can be applied to a pedicle and not always satisfactorily at that, as the point of the forceps may not project far enough beyond the tissues within their bite to secure a firm hold for the ligature; or the pedicle may lie very deep so that the ligature cannot be passed beyond the point of the forceps. In such a case it is necessary to use a ligature on a needle. The needle, threaded, is passed through about one-fourth of the diameter of the pedicle. Then, with a single knot, the tissues are brought sufficiently tight under the end of the forceps to secure a good hold. The ligature is then brought around the opposite side of the pedicle and a single knot made. The forceps are slowly loosened and the ligature pulled home; both sides of the pedicle are thus drawn tight and the ligature cannot slip (Fig. 5). I learned this very useful bit of technic from Professor Graser of Erlangen.

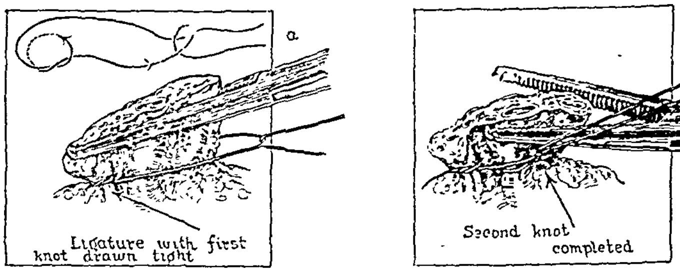

Fig. 5.—Method of ligation of pedicle (after Graser).

For large tumors an anterior transperitoneal incision is to be preferred over the retroperitoneal posterior lateral, especially for malignant disease. It permits careful examination of the growth, of the liver and of the abdominal contents generally so that the patient may not be unavailingly subjected to a formidable procedure if metastatic deposits are already present. For this reason the lungs should always be roentgenographed before deciding on operation to ascertain the presence of metastasis.

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4. Mayo, W. J.: The Incision for Lumbar Exposure of the Kidney, Ann. Surg., 1912, lv, 63.

In malignant renal growths, if the tumor is removable, the ureter should be located at once, divided, and the ends sterilized well below the tumor to prevent squeezing infected material into the lower portion of the ureter during the enucleation. The upper end of the ureter is dissected up to the pelvis and the renal vessels secured at their origin[1] before any attempt is made to remove the growth; otherwise, polypoid projections from the tumor, which may fill the renal veins, may be forced into the vena cava. This is an accident which necropsy findings show to be not infrequent, especially in the most common type of solid tumor of the kidney, the renal mesothelioma (Grawitzian tumor or "hypernephroma").

III. THE MANAGEMENT OF THE URETER AFTER NEPHRECTOMY FOR TUBERCULOSIS

In our experience less than 5 per cent. of the ureters in tuberculosis of the kidney require removal. These are usually cases in which a stricture exists in the lower portion of the ureter close to the bladder so that there is more or less retention on that side, a condition which obtains in a small percentage of the total number and which may be differentiated by ureteropyelography. Such ureters should be removed with the kidney at the primary operation.

If the kidney has become converted into a closed sac, the ureter will often be found to be obliterated just below the pelvis. In pure tuberculosis the ligation of such a ureter and sterilization of the stump disposes of it safely. In the "pipe-stem" ureters and all containing a lumen but in which there is no mixed infection, the injection of from 5 to 10 minims of a 95 per cent. solution of phenol (carbolic acid) into the ureter with ligation, insures such a ureter and the wound against further trouble. In these two types of cases the nephrectomy wound should not be drained, because of the danger of secondary infection of the ureteral stump which so often follows the drainage tract, leading to wound infection and sinus formation, to which I have called attention in a previous communication.[5]

Even if the wound be accidentally soiled with tuberculous material, it will be better to wipe it out carefully, fill with salt solution and close tightly rather than to drain, if the stump of the ureter be dropped into the wound. To put it broadly, in all tuberculous kidneys which have become closed sacs or at least have lost their function, the ureter may be sterilized and dropped into the wound and in such cases the wound should be closed without drainage.

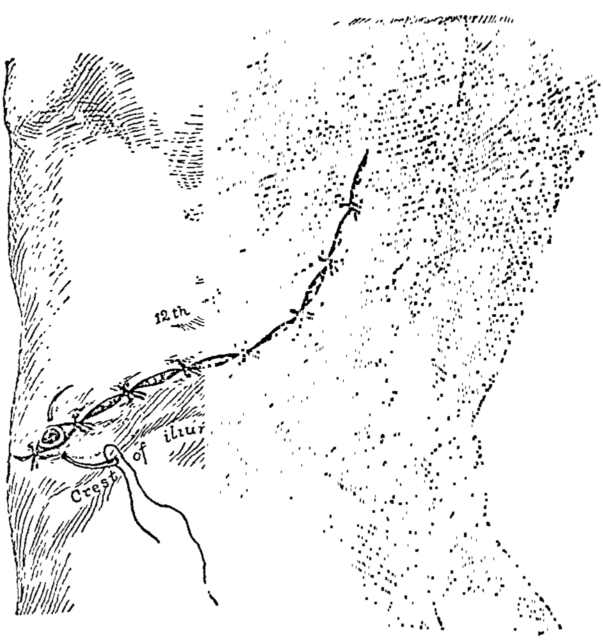

Fig. 6.—Proper incision for exposure of the kidney; ureter drawn out of anterior end of incision and sutured to skin.

When there is secretion of urine and especially when there is a mixed infection present, if the ureter be tied and dropped into the wound it will occasionally cause wound infection and sinus formation. If the other kidney be involved, the patient may eventually die from phenomena having their origin in the infection. In these cases the stump of the ureter should be attached to the skin at the anterior extremity of the incision and should not be dropped into the wound. When so attached it permits the safe escape of discharging fluids (Fig. 6). This is especially true in recent involvement of the kidney when there is considerable functionating renal tissue. The rule should be that when the kidney removed for tuberculosis is still secreting urine, if there is any evidence of mixed infection, the better practice is to attach the stump to the skin to prevent the possibility of wound infection with tuberculosis and sepsis. In just such cases the ureter will be found enlarged and softened but not shortened or rigid.

Subsequently, the ureter will often discharge more or less for some days or even weeks, but in practically all the cases it will heal spontaneously. Those which fail to do so can be removed at a secondary operation very conveniently from in front and the removal is greatly facilitated by its anterior attachment. In a considerable number of cases in which we have attached the ureter to the skin there has been no pain or inconvenience from it beyond the necessity of wearing a little pad of absorbent material over it, should it discharge for a short time.

Traditions and Superstitions Regarding Health.—How many people believe that gold wedding rings rubbed on the eye will cure styes? That green apples cause colic? That earrings improve sight? That a copper wire round the waist prevents rheumatism? That only nasty medicines cure? That whisky is good for pretty nearly any ailment? That the moon affects lunatics? That tuberculosis is hereditary? That measles is inevitable? That typhoid comes from dead weeds or fish in drinking water? That red flannel (must be *red!*) is good for sore throats? That sewer gas is poison? That small-pox can be telephoned from one person to another? That mosquitoes come from decomposing leaves? That malaria is due to night-air? That robust people do not have small-pox? That scarlet-fever scales are infectious? That raw beef-steak is good for a black eye? That drinking cow's blood fresh and warm cures consumption? That the smell from a horse-stable cures consumption? That if medicine is good for sick people, it must be still better for well ones? That eating turnips makes one brave? That onions cure or prevent small-pox? That dead bodies necessarily breed a pestilence? That rusty nails produce tetanus (lock-jaw)? These and many more like myths make up the fragmentary creeds on health that we have inherited.—Minnesota Public Health Association.

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[5] Mayo, W. J.: Nephrectomy Without Drainage for Tuberculous Kidney, Surg., Gynec. and Obst., November, 1912, p. 523.

PRICKLE-CELL AND BASAL-CELL SKIN CANCERS

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Although Adami[1] and certain other pathologists object to a sharp differentiation of tumors arising from the superficial epithelium into prickle-cell and basal-cell, it seems to me that the researches of Krompecher[2] and Bloodgood[3] have definitely established the fact that it is possible to draw such a line, both clinically and pathologically. In spite of the numerous publications of Bloodgood and his followers, there still exists considerable confusion as to the absolutely different form of treatment that is demanded by each type, a difference necessitated by the whole course of the cancerous process. In view of certain newer forms of treatment that are springing up, and that threaten to pay no attention to either the pathology or the clinical course of these tumors, it seems wise to restate the whole question again. The therapeutic measures to which I have reference are the Roentgen ray, radium and the various electrical processes of fulguration, desiccation, etc.

PRECANCEROUS LESIONS

It is now generally conceded that cancers do not arise from healthy skin, but that they have their origin in either actual diseased areas or in abnormalities of some kind.

The basal-cell neoplasms frequently spring from seborrheic keratoses, recently studied by Sutton;[4] from subepidermal nodules, which may be either fibromas, small sebaceous cysts, inflammatory masses in the sebaceous glands, or possibly benign epithelial growths originating in the appendages of the skin, from various other keratoses, such as those due to arsenic, or from cutaneous horns; from various overgrowths of connective tissue and epithelium, commonly but mistakenly called papillomas; and much more rarely from the lesions produced by lupus, syphilis, psoriasis and blastomycosis; and from leg ulcers or sinuses of various kinds.

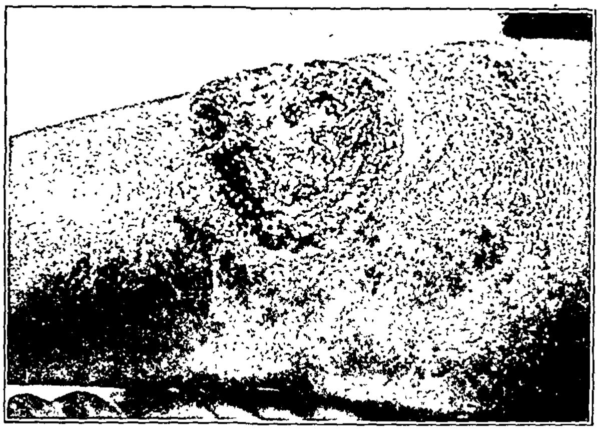

Fig. 1.—Prickle-cell carcinoma, originating from a varicose ulcer of the leg. The growth is of six months' duration.

On the other hand, prickle-cell cancers do not often originate from seborrheic keratoses, unless they be situated on the hands, but do arise from either arsenical or Roentgen-ray keratoses. They also arise from scars which are due to burns or to wounds which have healed by granulation, occasionally from sinuses of osteomyelitis, mastoid disease, etc.; from leg ulcers; from wens, and from various other chronic dermatoses. Bloodgood's papers[5] give a very good idea of these lesions.

HISTOGENESIS

Petersen[6] asserts that some basal-cell growths have a multicentric origin, and that they do not arise from one cell, or from one collection of cells. A recent case under my observation has borne this out, for in serial sections there were found a number of separate and distinct places where the basal cells were assuming a malignant type. This observation is very important from the point of view of treatment, for it may explain some of the frequent recurrences that take place just beyond the edge of the scar.

On the other hand, Petersen believes that the prickle-cell or squamous-cell tumors have but a single point of origin.

LOCATION

Basal-cell cancers most frequently arise on the face, especially from the eyelids and from the nasofacial grooves, as has been so well demonstrated by Sequeira.[7] McDonagh[8] thinks that in this location there are always many displaced epithelial cells, the remnants of some glands that existed in our ancestors, and that cancer arising in them is really an atavistic phenomenon. This variety of neoplasm is also common on the skin of the face and neck, on the scalp, and more rarely on the shoulders. It is rare on the skin of the limbs and also on the various mucous surfaces, although it does form nearly 4 per cent. of all cancers of the lip.

The prickle-cell carcinomas are most common on the mucous membranes, especially of the lip; they form the vast majority of all cancers of the extremities, and may occur anywhere on the cutaneous surfaces.

APPEARANCE

In the very earliest stages, either type of tumor first manifests itself as a cutaneous or subcutaneous nodule, that speedily forms an indurated ulcer, covered by a crust. When this crust is removed there may be either serous discharge or bleeding. At this stage physical examination alone cannot tell the variety of cancer, although the history and the location will usually give more than an inkling. However, the prickle-cell neoplasms usually grow much more rapidly, and the induration is deep. The surface of a fully developed squamous-cell cancer is often more or less verrucose, while the surface of a basal-cell growth is comparatively smooth. In the typical basal-cell growths there is more or less of a rolled edge, and individual pearly nodules can often be distinguished. In addition, there may be a certain amount of spontaneous healing, as evidenced by scar formation; this never exists in prickle-cell neoplasms. In general, however, either variety may be ulcerative or fungous, according to the resistance of the underlying tissue that the cancer cells are called on to penetrate. Both kinds may invade bone and periosteum; this is not a distinguishing mark of the prickle-cell variety.

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1. Adami: Principles of Pathology, New York, 1908, i, 735.
2. Krompecher: Der Basalzellenkrebs, Jena, Fischer, 1903.
3. Bloodgood: Progr. Med., December, 1904, 136.
4. Sutton, R. L.: The Symptomatology and Treatment of Seborrheic Keratoses, The Journal A. M. A., Jan. 30, 1915, p. 403.
5. Published in Progressive Medicine.
6. Petersen: Beitr. z. klin. Chir., 1902, xxxii, 543.
7. Sequeira: Brit. Jour. Dermatol., 1913, xxv, 172.
8. McDonagh: Brit. Jour. Dermatol., 1912, xxiv, 291.

METASTASES

Basal-cell growths never metastasize. I am fully aware that this statement will at once arouse opposition, but it is nevertheless true. It must be admitted, however, that a basal-cell growth can become changed into the prickle-cell variety and metastasis then result. Also, there is still a third form of cutaneous tumor, the cuboid cell, which springs from the transitional epithelium placed between the basal cells and the prickle cells of the rete. Microscopically these tumors closely resemble the basal-cell group, but metastases from them are common. These two facts explain the cases of reported metastases from the basal-cell cancers.

On the other hand, the prickle-cell carcinomas nearly always metastasize to the regional lymphatics, although this may not take place until the tumor has existed for a number of years. Also the original growth may be removed and the metastases not manifest themselves until a long time has passed. It should always be borne in mind that cancer cells can lie latent for many months. As a result, one must not say that a case of cancer is permanently cured until a long time has elapsed, probably at least eight years.

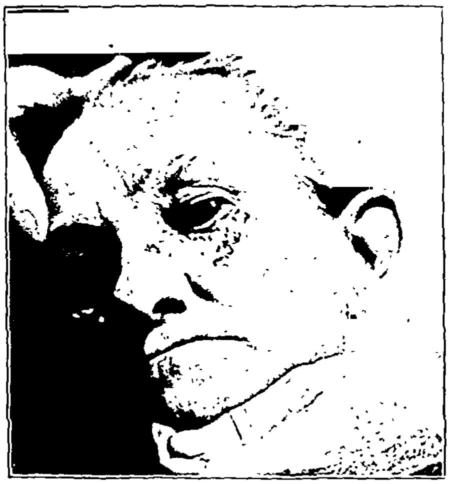

Fig. 2.—Basel-cell carcinoma which has spontaneously healed in the center. The pearly nodules show unusually well at the periphery.

PATHOLOGY

Gross.—When a prickle-cell cancer is excised and cut through, three things are to be noticed: first, that the surface is rough; second, that the infiltration is deep; third, that the cancerous alveoli radiate downward in the form of white lines, about the size of a very fine thread. In a basal-cell tumor the surface is usually comparatively smooth, the invasion less extensive, and the alveoli much smaller, in fact, often indistinguishable.

Microscopic.—When a section from a prickle-cell carcinoma is stained with hematoxylin and eosin, or with a similar combination of acid and basic dyes, it is noted that the cancerous alveoli are large, and that there is a great tendency for whorl formation to occur. These whorls are very apt to result in epithelial pearls. In addition, the individual cells are large and stain intensely with the acid dyes.

In the basal-cell neoplasms, the alveoli are usually small, if the growth has existed for any length of time, and there are never any whorls or pearls present. The individual cells are small, and stain with the basic dye rather than with the acid one.

There should be little difficulty in distinguishing the two varieties, except when the cells have become separated, and are individually invading the tissues after the manner of a scirrhus carcinoma. Even then, in some fields, typical arrangements can be found.

DIAGNOSIS

In early cases it is frequently impossible to tell one variety of tumor from the other, except by the location on which it develops, and by the history of the precancerous lesion from which it sprang. Neoplasms of the skin of the face are usually of the milder type—basal-cell, while cancers of the lips, penis and limbs are almost invariably derived from the squamous portion of the epithelium. Tumors of the upper portion of the trunk are usually basal-cell, while of the lower portion the reverse is true, the dangerous ones being the more common.

As already pointed out, growths springing from ulcers, sinuses, scars, Roentgen-ray burns or keratoses, lupus and other active skin lesions are more apt to be prickle-cell, while the growths originating from seborrheic keratoses of the face, and from subepidermal nodules, are often basal-cell.

In later cases the same factors play an important part in the diagnosis, but new ones enter the field. The rapidity with which growth occurs is of great importance, for basal-cell neoplasms usually grow slowly, much more slowly than the other type. A verrucose surface points toward the cancer being prickle-cell, while a smooth surface favors the other type. The depth of the induration is also an important factor, being much greater in the more malignant neoplasms. The presence of spontaneously healed areas, or the occurrence of definite small pearly nodules at the edges, is strongly indicative of a basal-cell origin. The presence of enlargement of the regional glands does not make the diagnosis of squamous-cell cancer certain, for the glands may enlarge as the result of the absorption of inflammatory products.

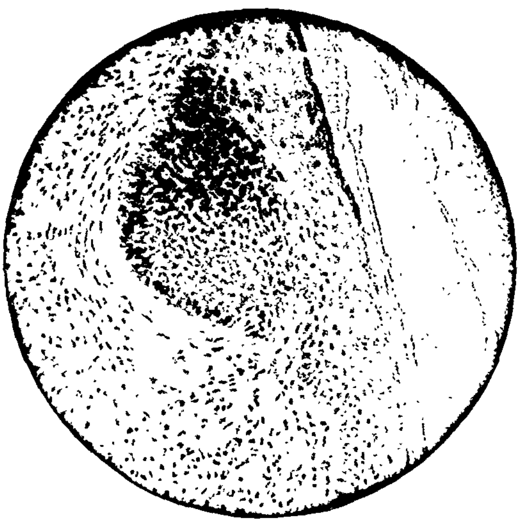

Fig. 3.—An unusually early basal-cell carcinoma, showing the point of origin very well.

Under no circumstances should a section of the growth be removed for diagnosis by a simple incision, for such a procedure leaves the blood vessels and lymphatics gaping and favors the dissemination of the cancerous process, inasmuch as malignant cells can readily enter the circulation. If it is deemed absolutely necessary to remove a bit, this should be done with the actual cautery, or with an old knife that has been flamed to a dull red heat. However, it is much better to remove the whole growth, and make the diagnosis from that. A skilful pathologist can usually make his diagnosis from the appearance of the gross specimen.

PROGNOSIS

Basal-cell tumors are apt to last for years; they may grow so as to cover a very wide area, and kill only when they erode a large vessel, or when they invade the meninges. The patient is much more apt to die from secondary infection. On the other hand, the prickle-cell neoplasms cause metastases and thus kill directly.

TREATMENT

Three classes of growths must be considered, first those that are frankly basal-cell; second, those that are unmistakably prickle-cell, and third, those concerning which there is some doubt.

A basal-cell cancer can be permanently cured if it is completely removed locally, for metastases do not occur. This complete local removal, however, is not always a simple undertaking, for a study of the pathology will show that they frequently undercut the epidermis to a considerable extent, so that the presence of extensive involvement is not realized. Secondly, they may be multicentric in origin, so that there may be new areas in the neighborhood.

There are many ways of removing a cancer, the knife, the cautery, the curet combined with the later application of a caustic, caustic paste, the Roentgen ray, radium, fulguration, desiccation, etc.

When one searches the literature for reports of late results in a long series of cases, he is forced to the conclusion that surgery yields the best results, for those practicing the other methods have not shown what they can permanently accomplish. Of course there are one or two individual exceptions, but as a general proposition this statement must hold.

In the surgical pathologic department of the Johns Hopkins Hospital, it has been found that nearly 50 per cent. of the patients who are suffering from late cancer give a history of early treatment with caustic pastes, and that many more have had Roentgen-ray treatment, etc.

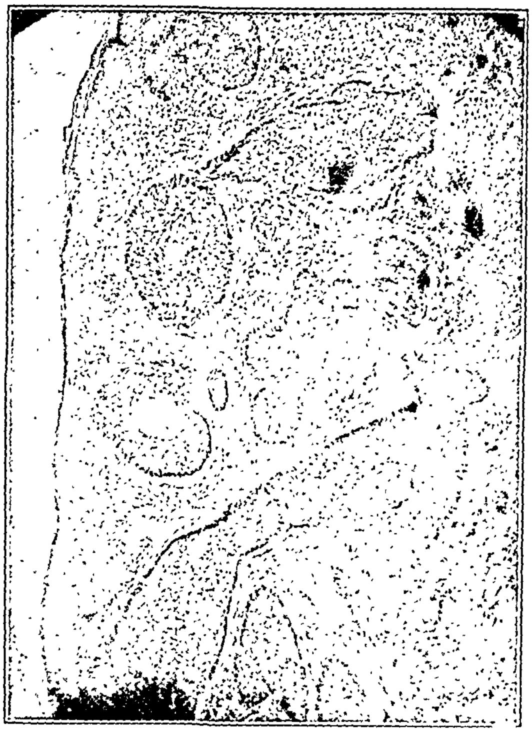

Fig. 4.—The later development of a basal-cell cancer. In this case superficial healing had been produced by the Roentgen ray, but the cancer was spreading beneath normal epithelium.

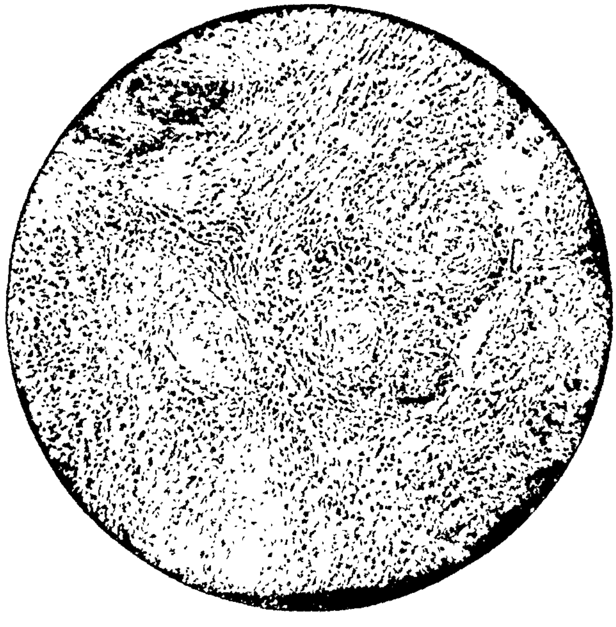

Fig. 5.—A typical section from a prickle-cell cancer. Notice the whorl formation.

The Roentgen ray has probably failed because too soft a tube was employed, a tube that did not give off rays of sufficient penetration. It is well known that such treatment can cause healing to take place on the surface, while in the depths the cancer spreads merrily. It is extremely doubtful if radium will accomplish any more than the properly used Roentgen ray. This form of treatment, however, should be applied in one or two massive doses, as advocated by MacKee[9] of New York, and not in a series of small exposures as is usually done. I have had some excellent results with one heavy, measured dose. At present it seems to me that the Roentgen ray should be reserved for the inoperable cases, and for those growths whose removal would cause great deformity, as when located on the eyelid or ear. I believe that all other growths should be either removed with the actual cautery, or with the knife, followed by the cauterizing of the edges.

Inasmuch as the prickle-cell carcinomas metastasize to the regional glands, the problem is similar to that encountered in cancer of the breast or lips. The ideal operation is a block one, in which the cancer with its underlying fat, fascia and muscle, the lymph vessels and the glands are removed in one piece. In some instances this is perfectly possible and should always be done. In other cases, as when the growth is situated on the nose and scalp, such an operation is impossible and can only be approximated. In this connection it will be recalled that the operation for cancer of the lip is a successful one, except in the very late cases. Here the cancer is removed in one piece and the glands in another, and yet recurrence practically never takes place in the small strip of lymph-bearing tissue that connects the two. Likewise in cancer of the hand or foot, growth takes place only at the original site, and in the draining glands. Hence it is fairly safe to remove both the tumor and the glands, leaving the connecting lymphatics undisturbed. If recurrence should take place in them, removal is possible. If the glands are left undisturbed, cancer cells may pass through them, and form internal metastatic growths. In other words, by removing the glands we have a fairly sure way of limiting the growth.

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[9] MacKee: New York Med. Jour., March 29, 1913.

In dealing with the uncertain cases we should always bear in mind that the first essential is to make an accurate diagnosis; hence, for the removal of such growths, a measure should be adopted that will permit of their safe recognition. This means that only the knife or actual cautery should be employed. In order to do the best work, these tumors should be diagnosed at once. A trained pathologist can usually do this satisfactorily by means of a careful examination of the gross specimen, but in many cases a frozen section should be made at once, and if the growth is of the prickle-cell type, the glands removed at the same sitting. In dealing with the very early cancers, growths that have not existed for more than a month, it is probable that local operation alone will suffice.

THE CLASSIFICATION OF MEDICAL SCHOOLS *

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The desire to classify seems to be a universal human motive. In education, in politics, in society, men reach out for some form of classification that shall be definite and specific, so that every cause may have its right label, every party its true name, and every institution be included in its proper class.

Institutions as they develop become more complex, and hence more difficult to divide into classes. These difficulties increase as one seeks to take into account intellectual and moral qualities. For this reason it has been almost impossible to classify colleges. It would be easy enough, indeed, to separate colleges into groups according to some simple condition, for example, those having more than five hundred students, or more than a million dollars endowment, or those teaching Hebrew; but such groupings would have little significance. The moment one takes into account intellectual qualities and educational facilities, the groups fade into each other by imperceptible gradations so as to wipe out the lines of demarcation.

The classification of medical schools does not present quite the same difficulties. There are certain criteria that may be applied to them, or, indeed, to technical and professional schools of any sort, which are more definite and easier to appraise than is the case with colleges.

Before any suggestions can be offered, it is necessary to present some review of the work of the Council on Medical Education of the American Medical Association, which has for some years been engaged in just this effort. Moreover, it has achieved notable results in the improvement of medical education in the United States. It has done more than any other agency could have done to weed out unfit medical schools, encourage full-time professors in the scientific branches, to demand bedside clinical teaching, and insist on adequate laboratory and hospital facilities.

This the Council has been able to do not only on account of the hard work of its chairman and members, but also because it represents the medical profession in America. Over half the practitioners of the country are members of the local medical societies. These choose delegates to the state societies, and the latter in turn choose the House of Delegates, a body of approximately one hundred and fifty. The Council on Medical Education is a committee of this body, and its action has all the weight of the entire medical profession. Universities, colleges and state boards have accepted the decision of the Council as the expression of the thought of the leaders of the profession in America.

Under these conditions the reorganization of medical teaching has advanced very rapidly, and the classifications of the Council have now become sufficiently differentiated to make some examination of the present situation desirable to all interested in medicine and in medical education.

As a layman in medicine I venture to make such a review because the Council is primarily a council on education, not on medicine. It is in effect a national agency in education, and its work touches the secondary school, the college, the university, no less directly than the medical school. It has dealt quite as much with the education which precedes the medical school as with that given in it. It is impossible, indeed, to legislate on medical education without becoming immediately involved in the entire educational problem.

From the standpoint of education I have not found myself in agreement with all of the work the Council has done, admirable as it is. For example, I cannot make myself believe that to begin three sciences and a modern language in one year will make toward sound education and training. I am sure that this recommendation will in the end be only a step toward a more wholesome effort to present medical candidates who are at the same time fairly educated and who are grounded in the elements of these sciences.

For similar reasons I look on the enforcement of this provision over the whole United States as premature. In the South the medical schools were barely on the high school basis, and I fear the effect of this action both on medical school and on high school. It will, I fear, work to continue for some years a series of insincere adjustments; and the progress made in the raising of standards, while attractive on paper, is liable to be in part illusory.

One feature of this effort for which the Council is not responsible is the submedical school teaching elementary science and modern languages. For these parasites on our educational system there is no excuse.

If the colleges are not doing rightly the work of premedical education, the remedy is to turn back unprepared students to them and to see that their work is well done. The remedy does not lie in having the medical school take over the work of the college. The real purpose of these schools is to get students. To be consistent, the medical board which goes into this effort should add a preparatory school as well. The intake would be larger. One can forgive in a measure the resort to this device in the case of a detached medical school, living on fees and with starvation ahead as a result of the new entrance conditions; but for a university to maintain, in addition to its own schools, such an extramural device for catching students seems unworthy of a university.

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* Read at the joint meeting of the Association of American Medical Colleges and the Federation of State Medical Boards, Chicago, Feb. 17, 1915. The full discussion of this paper appears under Society Proceedings, this issue.

These questions, while directly related to the educational work of the Council are, however, aside from the subject of this paper. I turn now to the matter of classification.

THE COUNCIL'S CRITERIA

To classify medical colleges, certain criteria must be assumed. The Council grades medical schools on a scale of 1,000, using ten criteria, each having a weight of 100.

The criteria chosen by the Council are:

1. Showing of graduates before state boards and other evidences of the training received.
2. Enforcement of a satisfactory preliminary educational requirement, granting of advanced standing, and the character of records.
3. Character of curriculum, grading of course, length of session, time allowed for matriculation and supervision.
4. Medical school buildings; light, heat, ventilation, cleanliness.
5. Laboratory facilities and instruction.
6. Dispensary facilities and instruction.
7. Hospital facilities and instruction, maternity work, necropsies, specialties.
8. Faculty, number and quality of trained teachers, full-time instructors, and assistants, especially of the laboratory branches, organization, and extent of research work.
9. Extent to which the school is conducted for properly teaching the science of medicine rather than for the profit of the faculty directly or indirectly.
10. Possession and use made of libraries, museums, charts, stereopticons, etc.

In order to make use of definite objective criteria in estimating a medical school, these tests must have two merits:

1. They must constitute true tests of the qualities of the school.

2. They must be capable of practical application in the hands of competent judges.

It seems to me that these ten criteria leave much to be desired, in respect both to significance and to practicability. Nor can they be considered comparable one with another in importance.

The showing of graduates before state boards, for example, is a test easily and definitely applied, but it is one which will vary with each state, and with the character and strictness of the examinations. Nor can it be compared in importance with good laboratories and good hospital facilities. It is a fact that in some states a candidate could, by a good use of cram books provided by a diligent faculty, pass with flying colors through the state board examinations, although he would be helpless in the presence of a patient.

A very interesting proposition was once made to the Carnegie Foundation by a young college man out of a job, who offered for a certain money consideration to pass with credit the state board examination in a given state without ever attending a clinic or knowing anything about medical practice. The proposition was not accepted, but it had interesting possibilities.

Criterion 2, as adopted by the Council, is definite, fundamental, and capable of practical application. It says in effect that one test of a medical school is the qualifications of the candidates it accepts. The practical test of this is a reasonable entrance requirement, honestly and sincerely enforced. To ascertain the validity of this test, however, it is necessary to carry out an inspection of these entrance requirements and their enforcement by men thoroughly familiar with the work of colleges and high schools.

Similar difficulties are evident in other criteria; such, for example, as No. 9, which undertakes to estimate the percentage of commercial spirit in the medical school. Such a criterion is in the first place incapable of practical application. To mark a school 50 per cent. commercial and then average this up with other higher percentages would seem a sort of *reductio ad absurdum*. Such a school has no place among good schools at all. Criterion 10 relating to the use of libraries is somewhat indefinite. These have their use in stimulating the acquirement of a good working library, although it may be doubted whether a library acquired under such pressure would be used. In any case it would be better to make the possession of a library a mark of good standing rather than to make its presence count in the same proportion as the possession of a competent faculty.

In general, it may be said that these criteria are too many, are not comparable one with another, and are not in all cases capable of practical application.

It is also fair to say that the application of such objective tests as these would require a staff of several experts. This would doubtless be true of any tests which could be devised. Thus the man who passes on entrance requirements ought to be an expert in education. He must know colleges and schools as only a teacher can know them. But such a man is quite unlikely to be qualified to pass on the pathologic laboratory. Similarly the expert who can pass on the laboratory might be quite unable to estimate the quality of the clinical teaching.

RESULTS OF THE COUNCIL'S CLASSIFICATION

Let us now turn to the results of the classification of the Council. When it began its work there were about 160 schools; to-day there are approximately 100, and this result speaks volumes for the work of the Council, whether one agrees with all its decisions or not. No better service than this has been done by any group of men laboring for the cause of education.

The third classification, revised June 21, 1914, divides the 109 medical schools then existing in the United States into four classes. According to this grouping, there are twenty-nine first-class medical schools, thirty-eight second-class, twenty-two third-class, and twenty fourth-class schools. One acquainted with these schools has only to examine these classes, or, more properly speaking, these groups, in order to perceive that this classification has now become almost meaningless. For example, the first class, or group, includes not only the strong medical schools with large endowment, complete clinical facilities, and research departments, like those of Harvard, Johns Hopkins, Columbia, Cornell, Washington University and others, but it takes in also institutions like Vanderbilt, Tulane and Texas, whose standards and facilities are of an entirely different order. To place the latter schools in the same class with the strongest in the country, and perhaps the strongest schools of the world, is good-natured prophecy, not educational justice.

But this is not all. Class A plus has been stretched to include schools of the type of the College of Medicine at Omaha, and the Starling-Ohio School at Columbus, since known as the School of Medicine of the Ohio State University. To group these schools in the same class as Harvard, Johns Hopkins and Washington University is to wipe out real distinctions.

The second class of schools, those grouped under Class A, show similar discrepancies. It would be difficult to defend on educational or medical grounds the wide variety of schools included under this group. Some of them are promising efforts under university direction, reaching toward good ideals and sound support. A considerable proportion are schools controlled by groups of practitioners and living entirely on the fees of students. To raise the standard of the entrance requirements, as the Council has done, makes it impossible for any medical school to live from fees and do sincere medical teaching. One cannot go through this list without realizing that however honestly and carefully it has been made, it contains an incongruous assortment of institutions which have no particular reason for being grouped into a class by themselves. One recognizes further that between the poorest third of the first class and the best third of the second class there is no appreciable difference. Finally, it is clear that a strong current exists which will ultimately tend to carry all these schools into Class A plus.

The succeeding classes (B and C) show similar incongruities. The schools differ from each other by imperceptible gradations, and their differentiation into distinct classes rests on distinctions which become every day more insecure. It shocks our sense of proportion to have Johns Hopkins classified with the Starling-Ohio, since become the colleague of a second school—a school of sectarian medicine—taken over by the same university. To class together such widely separated schools is liable to do harm rather than good. Some more permanent means of classification must be found if this classification is to endure.

Can medical schools, any more than colleges, be classified into sharply divided classes? This question lies at the root of the whole matter.

In reply I would say that in my judgment no body is so well prepared to carry out such work as a body which represents the medical profession. Reform in medical teaching, like all other reform which is genuine, will come from within, not from without. No other group of men, in my judgment, could hope to do what the Council on Medical Education has accomplished. I believe, as I have already said, that the Council has suffered in its work by a lack of touch with the educational conditions with which it has been dealing. It can, I believe, improve its future legislation by availing itself of a closer knowledge of schools and colleges; but I question whether any group of men, however qualified, can make a hard-and-fast classification of medical schools which would not be open to serious criticism. In other words, the problem of classifying schools into four or five groups on such criteria as the Council has assumed seems to me practically insoluble. It has served its day and some looser form of grouping seems now desirable.

SUGGESTIONS FOR AN IMPROVED CLASSIFICATION

In order to make an improvement in the present classification, one must go back to the criteria which are adopted for estimating a medical school. There are certain things about a medical school which are fundamental and yet definite and specific, and which may fairly be appraised by those who have the necessary knowledge and experience and who take the necessary time. The feasibility of any truthful classification rests absolutely on having criteria that shall be at once significant and capable of application. These are few in number. They seem to me to be embraced under the following heads:

1. The first test of any school, whether it be a school of general education or for a profession, is the quality of material which it accepts; or, to put it in another way, the state of preparation at which it admits its students. An entrance requirement reasonable and fair to the school system and honestly enforced is one definite criterion for the judgment of any teaching institution. This criterion, however, is of value only when it is administered by men familiar with the school systems and the colleges.

2. It is not enough to receive into a medical school well-prepared candidates. Experience has shown that students received at the high school level develop into better practitioners of medicine than those who enter with a more advanced education but are taught by teachers who are either incompetent or who have given only the fag ends of their time from practice. In other words, the quality of the teaching, the ability and devotion of the faculty, must be taken into account in estimating the fitness of a school of medicine for training physicians.

Furthermore, let us not forget in our zeal for research that the principal function of the medical school is the training of medical practitioners. To sacrifice their interests to the preparation of a few men for research is not to be thought of. Both ends can be attained by the use of a wise discretion.

These practitioners of the future enter the medical school as youths of from 20 to 23. Their value to the body politic as physicians will depend as much on the character of their teachers as on their skill. I venture to say that every successful physician as he looks back toward the causes of his success will recall one or two of his medical teachers who helped him into the right path full as much by their human and moral qualities as by their professional skill. The value of a physician to any community is just about equal to his medical skill multiplied into his moral character. Therefore above buildings, above state examinations, above even laboratories and hospitals, I would place the character and the ability of the faculty, including the clinical professors, for they furnish the ideals of the young practitioner. It is the character of the teachers which determines whether the medical student fits himself for the business of medicine or the profession of medicine.

For another reason it seems to me desirable to lay at this time stress on the matter of teaching. The student loses time in both high school and college by reason of lack of teaching skill on the part of his teachers; but there is no other teaching institution in which the art of teaching is so little considered as in the medical school. A man is chosen because he is a good pathologist, a skilful anatomist, a well-known surgeon; but the question whether he can teach is seldom raised, nor is there any oversight in the medical school for improving the teaching or for the elimination of ineffective teachers. The good teacher comes by accident. Nowhere is there a greater chance to save time for the medical student than by improving the teaching in the medical school itself.

These two criteria—the basis of selection of the student body and the basis of selection of the teaching body—outweight all other considerations.

It is true that this estimate involves a wide exercise of personal judgment. To say what constitutes a good teacher is one of the most difficult tasks. Nevertheless, the quality of the teaching is a fundamental fact in the school which cannot be escaped. Some judgment of it must be attempted, if any estimate of the school is to be made.

It is far sounder educationally to place large weight on the quality of the teaching rather than on a specified curriculum. After all, we do not wish to make these medical schools absolutely alike. A certain elasticity of institutional development should be left. Courses of study will under any circumstances follow a general plan. Too sharp insistence on the details of the courses would seem to make against their educational freedom, which is desirable. Beside these two criteria whose determination involves the evaluation of certain educational and moral qualities, I would add three others which are definite, precise and which admit of accurate application:

3. The completeness and availability of the scientific laboratories in chemistry, anatomy, physiology, pathology and associated sciences form a definite and practical criterion for estimating the value of a medical school.

4. Similarly, the character of the clinical facilities, including both hospital and dispensary and the use which is made of them, form a concrete and a usable test of the character of the school.

5. These four qualities of a good school—soundly administered entrance requirements, an able and devoted faculty, complete scientific laboratories, modern clinical facilities both in the hospital and in the dispensary—can be obtained only by the expenditure of money. Below a certain minimum of expense it cannot be honestly done. A school that pretends to do these things with a wholly inadequate income stands self-revealed. To provide them from the fees of students, under the conditions now accepted by medical schools, is impossible. In other words, a concise, detailed statement of the receipts and expenditures of the medical school throws a great light on the relation of its professions to its performance. It affords the most practical means of showing how far performance keeps pace with promise. A prospective medical student who knew how much money was spent on the departments of pathology, or internal medicine, or obstetrics, would get a better insight as to whether the medical school could carry out the promises of its catalogue than he could from any other source. If he knew that the department of pathology was run on $1,800 a year—including the salary of the professor—he would know more about what sort of education he was likely to receive than could be gleaned from whole pages in the catalogues.

Perhaps there is no other one thing in which the medical schools, and particularly those which are on the border line, are more tender than over the request to make an exhibit of their finances. The request to furnish this generally brings forth an eloquent oration on the thesis that the work of a medical school must not be measured by the money put into it, that no one can reckon in dollars the devotion of the medical practitioners of the country, and that to place their service on a commercial basis is an insult to the profession. No one would depreciate the devotion and self-sacrifice which American physicians and surgeons have put into medical schools. No one who knows anything about the subject, however, will fail to recognize that their presence on a medical faculty is in many cases a matter of business as well as of devotion. Any man who knows what the transformation of our medical schools means understands that the modern medical school cannot be maintained on the kind of teaching that sufficed for the medical school of ten or fifteen years ago. The time is here when the clinical professor must give not a mere fraction of his time to the medical school and the hospital, but this must constitute his primary work, to which his practice is secondary. Under these circumstances the medical school which professes to give a modern education with a totally inadequate income is offering something which it cannot furnish; and the prospective student has a right to this sort of information.

I repeat, therefore, that an honest detailed statement of the receipts and expenditures of a medical school forms one of the most sure and just tests for judging the work of the school and the relation of its promise to its performance. Most medical schools prefer to be virtuous when they can afford it.

Assuming that these criteria are reasonable and practical, do they form a means for accurate classification? In other words, can some grouping of existing medical schools be made on these criteria which will be educationally just, which would be helpful in the development of the schools themselves, and for medical education? For after all it is this last consideration which ought to govern our judgment. No classification is worth while unless it makes in the end for the betterment of medical education. And those who have watched the classifying process have been aware of a somewhat disquieting tendency among the medical schools to get into Class A or Class A plus without much regard as to whether they were better places for education or not.

A hard and fast differentiation into four or five distinct classes is, I believe, almost impossible, and its ultimate effect doubtful.

From such thought as I have given the matter, I am inclined to think that one in the possession of the information called for under these five heads could make some such grouping as the following:

There is a group of institutions of the highest class, which in respect to all these tests stand by themselves. They constitute a group apart and include those institutions of large resources and endowment, of high standards and of large clinical facilities, which are clearly able to offer the best modern education. No two persons qualified to judge will differ greatly concerning them.

It would also be feasible to designate a list at the bottom of the medical schools made up of institutions which are weak, which are involved in commercial medicine, which live only by flagrant evasion of all reasonable standards, and which ought not to be recommended to students. This group of institutions should be omitted altogether from any list to be recognized by the American Medical Association. To a certain extent a school considers itself recommended to the public even when it appears in Class C.

There would then remain a group of medical schools secondary to the strong and well-endowed schools, but which are able nevertheless to give a fair medical education along modern lines. They are the places to which a student would go knowing he might not get the best opportunities which the country afforded, but that he was receiving a decent modern education in medicine. Such a group would undoubtedly contain institutions of a wide variety of excellence, but great light would be thrown on their relative standing by a publication of the details on which the grouping was effected. Promotion should be made only when it had been clearly attained, and the basis on which it was accorded should be made public. In all these matters publicity is wholesome alike for the medical school and for the agency which seeks to appraise it in comparison with others. The indefiniteness of the Council's descriptions of these classes has been one great source of difficulty. To call a group of schools "satisfactory" is not enough. The grounds of the decision also ought to be made known. This means carefully chosen criteria, a body of three or four experts (not necessarily employed all the time but in thorough cooperation), examinations of a detailed and careful nature, and finally full publicity. I hope the Council which has so brilliantly done the work of the past ten years may have the means to undertake this sort of examination.

CONCLUSION

Let me say one word in regard to such criticism as I have made of the Council on Medical Education. I have spoken concerning the work of the Council with great frankness for the reason that no other course is worth following, and in the belief that progress comes only by the frank and honest expression of opinion in regard to such matters. I have such high regard for the work of the Council, and for the work of its chairman, that I take a keen interest in the preservation and development of the Council's work—a work which seems to me liable to fall from its own weight if the classification proceeds along the present lines. I hope, as a layman in medicine, that it is not impertinent of me to discuss these matters, since they are primarily questions of education; and I hope also that it may be admitted that the sincerest service a friend can perform with respect to the work of the Council is to speak in a critical, and yet in a friendly way concerning those directions in which, it seems to him, the dangers lie. The interests of education in our nation are one. Education itself is one thing, from elementary school to university; and medical education in its largest and truest sense can be approached wisely only when one keeps this fact in view and regards medical education in its true perspective as a part of the whole problem of education of the American nation.

PATHOLOGY OF OROYA FEVER

THIRD REPORT *

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PREVIOUS INVESTIGATIONS

We have not been able to find in the literature any accurate and complete description of the pathologic anatomic lesions of Oroya fever. Evidently but very few careful and complete necropsies have been performed in those regions in which the disease occurs endemically. Moreover, the disease often has been confused with other diseases which occur in these localities. Both of these facts tend to explain the absence in the literature of complete and accurate descriptions of the lesions which occur in Oroya fever. In the estimable monograph of Professor Odriozola,[1] we find the most complete account of the gross lesions, and Scheube,[2] Plehn[3] and Castellani[4] also very briefly refer to the pathologic anatomy of the disease.

> Odriozola, writing on this subject, states that the lesions which are observed at necropsy are relatively slight when compared with the gravity of the disease. The most noticeable feature is the profound anemia. All of the tissues and organs are very pale. Nevertheless, local complications of a congestive or inflammatory nature are not rare, and it is frequent to see foci of congestion or inflammation in the lungs, especially at the bases. Sometimes there is congestion of the intestinal mucosa and a true enteritis. The blood is very liquid, coagulates very slowly, and is blackish in color. The pericardium contains a variable quantity of serous fluid. The cavities of the heart are empty, and one may find fibrinous clots adherent to the walls and extending into the larger vessels. The liver and spleen are frequently congested, the liver sometimes attaining a volume suggesting hepatic suppuration. The spleen can likewise be increased in size so that it extends almost to the iliac fossa and can suggest paludal cachexia. In this case it is surprising to see this organ become rapidly reduced in size at the time the eruption appears. The congestion of the spleen and liver, however, is not constant. Sometimes the spleen is normal or even reduced in size. The congestion of the liver is, however, more constant than that of the spleen. The lymphatic glands are all swollen and congested, and this hypertrophy surpasses that observed in common anemia. The mesenteric glands reach a volume comparable to that found in tuberculosis or in leukocythemia. He regards the enlargement of the lymphatic glands as an excellent diagnostic sign, very valuable in accessible regions, such as the cervical, the subclavicular, the carotid, axillary and inguinal regions.

Tamayo[5] has reported on twenty-six cases of Carrion's disease, eight of which were fatal. Necropsies were performed upon five. Almost nothing regarding the pathologic conditions observed occurs in the report. It is stated that in three of the cases nothing special was found at the necropsy. In the other two cases the necropsy findings are reported as negative with the exception of the fact that the spleen and liver were enlarged. In one of the cases it is reported that a few verrugas were found on the spleen when there had been no eruption on the skin during life. Nevertheless, the blood counts made on these patients during life all showed very advanced anemia, so that some pathologic changes must have been visible at the necropsies. No report on the condition of the intestines or other organs is given.

Through the kindness of Dr. Hercelles, professor of pathology in Lima, we had the opportunity of examining the pathologic material relating to Oroya fever and verruga peruviana in the museum and laboratory at the Dos de Mayo Hospital. In Dr. Hercelles' opinion, the most striking lesions of Oroya fever (cases of verruga peruviana without the eruption, as he designated them) are the infarctions in the spleen which occur very commonly. Infarctions in the liver he has also observed.

PRESENT INVESTIGATIONS

Our ideas regarding the pathology of Oroya fever, which follow, are based upon the study of organs and

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* From the Harvard School of Tropical Medicine.

[1] Odriozola: La maladie de Carrion ou la verruga péruvienne, Paris, 1898, p. 98, Carré and Naud, editors.

[2] Scheube: Die Krankheiten der warmen Länder, Jena, 1903, 416.

[3] Plehn: Mense, Handbuch der Tropenkrankheiten, Leipzig, 1905, Ed. 1, ii, 438.

[4] Castellani: Castellani and Chalmers, Manual of Tropical Medicine, London, 1913, Ed. 2, p. 1201.

[5] Tamayo: Crón. méd., Lima, 1905, xxii, Nos. 406, 407.

tissues collected by ourselves, but the material observed and received from this institute and from other Peruvian physicians has also been considered in our discussion of this subject. The latter material, however, will be referred to more particularly in a report dealing with the pathology of verruga peruviana.

In our opinion, the most striking feature observed at necropsy of patients who have died with Oroya fever is the evidence of an advanced anemia. The skin shows marked pallor and is usually of a pale, yellowish, waxy color. There is no eruption on the skin in uncomplicated cases. The conjunctivae and finger tips are also pale. Diffuse and punctate hemorrhages may occur in the conjunctiva and in the mucosa of the nose or mouth. The superficial lymphatic glands are usually moderately enlarged, of firm consistence, and on section of a pale pink color. Frequently they are edematous. There is almost always considerable emaciation, and the subcutaneous fat is scanty. Small punctate hemorrhages are often observed in this tissue. A few petechial hemorrhages may occur in the epicardium, viscera, pleura and fat elsewhere in the body. These are not extensive, however. There is a tendency to moderate edema in many of the tissues. The heart usually contains partially fluid, pale red blood. The myocardium is often flabby; a few small discrete ecchymoses may be present in the pericardium. The lungs are usually pale. They sometimes show some congestion; more commonly, however, edema at the base. A few petechiae are often observed beneath the pleurae, and a small amount of pleural effusion is common. The spleen is usually enlarged and of firm consistence. The follicles are not swollen, and are sometimes indistinct. Infarctions are common. The liver is frequently somewhat swollen. Its consistence is flabby, and the cut section often shows yellowish mottling and sometimes areas in which necrosis and fatty degeneration are perceptible. The mesenteric lymphatic glands are swollen, and on section either pale pink or somewhat reddened in color. The follicles of the small intestine may be swollen, but in other cases they may be normal in appearance. Superficial ulcerations have been found in the large intestine. Probably lesions of this nature develop only late in the course of the disease and are secondary in character. The bone marrow is usually distinctly softer than normal, and the surface sometimes shows a grayish-red mottling.

HISTOPATHOLOGY

We have also been unable to find any accurate report of the histologic changes occurring in Oroya fever, or, indeed, any account of the specific lesions we have observed in the microscopic study of the tissues of persons dying from this disease. Nevertheless, in tissues presented to us in Lima from Oroya fever cases (designated as verruga cases in which there was no eruption on the skin), we have sometimes found the same lesions we have observed in the tissues collected at necropsy by ourselves. The tendency, by many Peruvian physicians at least, has been to regard the case coming to necropsy with no lesions of verruga either on the skin or internally, as one of mistaken diagnosis, or as one of verruga peruviana in which death has occurred before the nodular lesions have appeared. The interest in Peru has appeared almost always to center on the histology of the verrugas. In the histologic study of the tissues from persons dying from Oroya fever, we have found marked changes in the liver, spleen, bone marrow and lymphatic glands.

The *liver* shows areas of toxic degeneration which have apparently resulted from the activity of the parasite *Bartonella bacilliformis*, and this fact would suggest that during the course of the disease, in addition to the destruction of the red cells by the parasites developing in them, another pathologic process results from the presence of a toxin in the circulating blood. The action of such a toxin seems to be revealed in the liver by the presence of extensive areas of necrosis of the central type, beginning about the hepatic veins. In these areas, many of the liver cells in sections hardened in Zenker's solution show numerous vacuoles in their cystoplasm which suggest spaces formerly occupied by fat, and in tissues hardened in liquor formaldehydi frozen when cut and stained with scharlach roth the characteristic stain for fat is obtained in these areas. Distinct zones of these cells containing fat droplets surround central areas of more marked necrosis in which many of the liver cells are very granular. Other liver cells about these areas appear homogeneous and hyaline, and stain intensely with eosin. Much granular material is present in the sinusoids, and numerous endothelial phagocytes frequently containing erythrocytes, erythroblasts and polymorphonuclear leukocytes are present in the periphery of the necrotic areas between the liver cells. While there is not extensive pigmentation of the liver, moderate amounts of pigment in granules or small masses may be seen within the endothelial phagocytes and in a few endothelial cells lining the sinusoids. Occasionally small granules of pigment may be seen in the liver cells. Most of this pigment does not give the iron reaction; it is yellowish or brownish, and not black. Crystals of hematoidin are also present.

The *spleen* shows numerous infarctions. In sections, the edges of the infarcted areas are much congested and show leukocytes migrating into the necrotic tissue. Many of the veins show thrombosis suggesting endothelial injury from some toxic or infectious agent. At the periphery of many of the splenic nodules just outside the capsule, areas of necrosis are visible in which there is marked deposition of fibrin. There is a large amount of pigment in the spleen, which occurs in small or larger masses and also in fine granules. It is yellowish or yellowish-brown, and is present in both the endothelial leukocytes and also free in masses between the splenic cells. The pigment is not black, and does not resemble black malarial pigment. It resembles melanin in that it does not give the iron reaction. Whether or not in Oroya fever the anemia partially results from the destruction of the red blood cells through the circulation of hematin, as W. H. Brown[6] believes to be the case in malaria, at present is not clear. *Bartonella bacilliformis* evidently produces no pigmentation in its development in the red cells in the peripheral circulation. No malarial parasites are visible in the splenic sections in uncomplicated cases. The spleen is rich in pulp and much congested; many nucleated red blood corpuscles are visible. Endothelial phagocytes frequently containing red blood cells are also present in abundance. Other large swollen endothelial cells are observed containing rounded and rod-shaped bodies. These will be described presently in detail.

In the *bone marrow* there is also striking evidence of phagocytosis by endothelial leukocytes of the red corpuscles in various stages of development, and of polymorphonuclear leukocytes as well as increased production of normoblasts. It seems probable that this extensive phagocytosis, which is evident in the liver, spleen, and bone marrow, is also an indication of the action of a toxic substance which has led to chemical changes or injury to the engulfed cells.

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[6] Brown, W. H.: Jour. Exper. Med., 1913, xviii, 96.

In the *lymphatic glands* the most striking pathologic picture, which at once attracts the attention and which has already been referred to in the spleen, is the presence of large, swollen, endothelial cells, sometimes free in the lumen of the blood vessels, at other times still attached to the walls. In some instances a single endothelial cell is so swollen that it will almost occlude the entire lumen of the vessel. These cells are in various stages of degeneration. Many of them are distended with rounded and rod-shaped elements and it is apparent that a multiplicative phase in the development of the parasite *Bartonella bacilliformis* takes place within these cells. These changes are, however, much more clearly observed in smear preparations made from the lymphatic glands and stained by Giemsa's method. In such preparations a number of the endothelial cells contain rounded bodies with bluish cytoplasm and small granules of chromatin. In some of the cells but a single body is present; in others, two, four or many may be observed. Sometimes the cell is distended with rounded masses or spheres each containing a definite number of minute points of chromatin. These spheres are of rather uniform size.

The large intestine shows ulcerations with distinct undermining of the mucosa at the edges, so that frequently the lesion has the appearance of a small abscess cavity lying in the submucosa. There is a more or less distinct line of demarcation of the abscess with vascular granulation tissue forming the wall; numerous polymorphonuclear leukocytes, fibrin, necrotic tissue and bacteria are present. In some areas, coagulation necrosis is marked. No amebas or other animal parasites are visible, nor does the ulcer show anything histologically characteristic of any other disease. The blood vessels in the vicinity of the lesions show endothelial cells distended with the rounded and rod-shaped parasites already described. These are also found elsewhere in the blood vessels of the submucosa in small numbers, and in the lymphoid tissue of the submucosa they are present in large numbers, where they sometimes appear to obstruct the blood vessels. It appears probable that this may be the primary factor in the production of the ulcerations, and that they are brought about in a somewhat similar manner to the ulcerations of the intestine sometimes produced by *Leishmania donovani* in kala-azar infection.

From a study of other cells it would appear that these spheres break up into a large number of minute elements, each of which contains a chromatin granule; these become elongated, and finally appear as distinct rods containing at one end a minute particle of chromatin. The latter appearance is particularly apparent when the sphere is ruptured and the rods set free. If these rod-shaped elements, which have been set free by the rupture of the endothelial cells, are compared with the rods found within red blood-corpuscles lying near, it is seen that they are identical in character. Moreover, they are entirely similar to the forms already observed in the blood-cells in the peripheral circulation. It seems very probable that the rods which have escaped from the spheres constitute microgametocytes, rather than merozoites, which have subsequently entered the erythrocytes, and the movements of the parasites observed in the red blood corpuscles in fresh preparations, and already referred to in previous reports, coincide with this idea. Thus the appearances observed in the endothelial cells of the lymphatic glands from Oroya fever cases resemble considerably those described and pictured by Gonder[7] in his description of the life cycle of *Lympho-haematocytozoön parvum,* formerly *Theileria parvum.* Through the kindness of Dr. K. F. Meyer, one of us recently received microscopic preparations of this organism, and from a study of these preparations and the articles by Dr. Meyer[8] and Dr. Gonder on this subject, the similarity between the organism observed by us in the endothelial cells in Oroya fever and *Lympho-haematocytozoön parvum* is further suggested. Owing to the more minute size of *Bartonella bacilliformis,* particularly in the multiplicativ phase, the life cycle within the endothelial cells is much more difficult to observe and interpret. From these observations, however, it appears that *Bartonella bacilliformis* should be classified as a protozoon and that it is related to the Lympho-haematocytozoa, a genus recently created by Meyer. Further observations on a larger amount of material are, however, desirable.

We have said that we have been unable to find any accurate account of the histopathology of uncomplicated Oroya fever cases in the literature. In an instance in which sections of the spleen were sent to Bindo de Vecchi,[9] somewhat similar lesions were evidently encountered by him.

> In de Vecchi's case there were no nodules on the skin. Neither the clinical history nor the necropsy made mention of such a condition. The hemorrhagic lesions of the spleen were very striking. These began in the follicles and finally destroyed them. The liver was so markedly changed that the tissue could hardly be recognized. The sections showed so-called "dissociation of the lobules" to such a degree that the characteristics of the cells were no longer present, but they were massed together. Single cells showed different lesions of degeneration and sometimes necrosis of the cell. Also different liver cells showed in their protoplasm either single or multiple inclusions of round bodies that stained deeply with a basic stain, with a ring about them, and were often accompanied by precipitated pigment. In the markedly changed tissue there were also found small recent hemorrhages and a rich infiltration of leukocytes. The endothelial cells were swollen or desquamated, and some of them had assumed the function of phagocytes. De Vecchi believed that the inclusions of protoplasm in the liver cells were to be regarded in all probability as the remains of nuclei from leukocytes, and they were to be explained through the phagocytic function taken over by the liver cells as occurs in the severe degenerative lesions of the liver, and particularly in acute yellow atrophy.

The tissues on which these descriptions of de Vecchi are based, however, were sent to him from Peru, and he had been informed that the patient from whom they came had died of severe Carrion's fever. It was stated that no verrugas of the skin or internal organs were observed at the necropsy. However, it was also stated that a paratyphoid bacillus had been isolated from the spleen. Possibly the organism encountered in this case was a species of paracolon or colon bacillus, and a terminal invader in a case of Oroya fever. In the light of our own observations, the changes described in the sections of the liver by de Vecchi suggest such a possibility.

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[7] Gonder: Jour. Path. and Therap., 1910, xxiii, 328.

[8] Meyer, K. F.: Kolle and Wassermann, Handbuch d. path. Mikroorganismen, Jena, 1913, Ed. 2, vii, 531, 539.

[9] De Vecchi: Arch. f. Schiffs- u. Tropen-Hyg., 1909, xiii, B. 4, p. 143.

HISTOLOGIC EXAMINATION OF OTHER TISSUES

Just prior to our departure from Lima, and after our investigations there had been completed, we obtained from the Hygienic Laboratory and from the Dos de Mayo Hospital blocks of tissue from necropsies not performed by ourselves. In these cases a diagnosis of Oroya fever or of verruga peruviana had been made during life. We were unable to obtain complete histories of these cases. In some it was stated there had been verrugas on the skin during life, or in the viscera at necropsy. However, our experience in Peru has led us to believe that lesions may be sometimes referred to as having been due to verruga peruviana, which more careful investigation showed to be of an entirely different nature. These tissues were sectioned and studied, and the results of this study are interesting.

From the description which we have already given of the pathology of Oroya fever, it is evident that the histology of this disease is pathognomonic. In the study of the tissues just referred to, the finding of the characteristic lesions, and particularly the presence of the swollen endothelial cells containing the parasites, in at least one of the cases, enabled a definite diagnosis of Oroya fever to be made. As has been stated, the diagnosis of some of these cases given to us was verruga peruviana with Oroya or Carrion's fever.

It is evident that cases of verruga peruviana have been mistaken for cases of tuberculosis, and the tissues from two of the cases referred to above evidently came from patients suffering with tuberculosis, since tubercles and tubercle bacilli were found in the sections. It seems evident that the tubercles present in the liver in these cases were considered as verrugas of the miliary type. That other such mistakes have been made we are confident from the fact that miliary tubercles in the spleen and liver due to *Bacillus tuberculosis* have been shown us by physicians as internal verrugas. It is clear, therefore, that in Peru, miliary tuberculosis has sometimes been diagnosed incorrectly not only as verruga peruviana, but also as Oroya fever. Obviously also, miliary tuberculosis may occur as a complication of either disease.

ETIOLOGY OF CANCER IN THE LIGHT OF RECENT CANCER RESEARCH*

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I had in mind calling attention to certain recent developments in cancer research. As it would be impossible, however, in the limits of this paper, to outline the advances made in so extensive a field, I shall attempt to appraise the value of certain new discoveries, without attempting sweeping generalizations, in the belief that this will prove more profitable than a more general survey of the subject.

Perhaps the more important problems in cancer research center in the so-called parasitic theory. In the past there has been intense and at some times almost bitter controversy over the tenability of this theory. To-day, however, through the discoveries of filterable viruses causing different types of sarcoma in chickens, we may assume that the parasitic hypothesis is at last justified. When it has been determined that one genuine neoplasm is caused by a viable agent or organism, those who have contended for the parasitic theory as a working hypothesis will feel that the period of controversy on the merits of the hypothesis has passed. The question which will mostly concern us in the future is whether only a few neoplasms are caused by living organisms or whether living organisms are responsible for a large part of that group of tissue growths which we call malignant.

There are striking indications that the views of investigators of cancer in general are gradually coinciding. The views of those who have been opposed to a parasitic theory have been modified by the results of research to such a degree that there has been a steady drawing together of opinion as to the cause or causes of neoplasms. Thus we find Versé, in Marchand's Institute in Leipzig, reviewing the more recent discoveries of cancer research in an inaugural address in which he concludes that the agent which endows a normal cell with malignant characteristics is, in many cases, a biochemical agent acting from without the cell. We also hear of activators, and we find that some workers still contend that the filterable agents of Rous are not viruses, but hypothetic bodies of the nature of ferments or other biochemical products. We do not need to concern ourselves with the question whether or not there exists life in unorganized form, and whether there may exist agents so closely allied to ferments as to be able to fulfil the requirements of filterable viruses. The significant thing is that the agent which Rous has separated from the cells fulfils the requirements of, and belongs in, the group of filterable viruses. Most of these are the cause of well-known infectious diseases.

It is now generally recognized that there are well-defined agencies which work at least locally in a predisposing manner. These bring about what may be properly termed precancerous conditions of the tissue. They are mechanical, physical (thermic and actinic), chemical, infectious-inflammatory and other agents. They are of such varied nature that we find generalizations being made that the cause of cancer is really the multiplex complications and activities of modern life. So far as they may be determined locally, they are well summed up as chronic irritation, but it has been shown in exceptional cases that the predisposing changes in the tissue are not of a chronic nature, that even a single trauma may suffice; but such cases are exceptionally rare. The time between the establishment of the so-called precancerous condition and the advent of cancer may frequently be very long, many years, but by careful study of individual cases, the local predisposing features may be definitely determined in a high percentage of cases. Thus von Brun, who confined his study to the superficial skin cancers which are most easily studied, was able in 368 cases to determine a predisposing irritant in all but forty-eight. The relation of remote trauma and chronic irritation to malignant tumors is so well known to clinicians that it is not necessary to dilate on this phase of the question. The evidence of chronic *irritation as a predisposing feature in the advent* of cancer has been recently revived by the demonstration of nematodes, mites and acarines in the well-known cancer of the breast in mice, and the interesting cases of both carcinoma and sarcoma in rats starting from the walls of echinococcus cysts and cysticerci. Febiger has determined the cause of the irritation to be a minute nematode in cancer of the esophagus and stomach in rats. The significance of worms and their embryos in bilharzia disease has long been known. In such cases these larger parasites set up chronic irritation, which, however, is not always followed by cancer. This indicates clearly that they are not an efficient cause of the disease, but act as some would believe through toxic biochemical products, which they elaborate, or as carriers of a specific virus.

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* Read before the Chicago Medical Society, Nov. 11, 1914.

Besides the local predisposing or precancerous conditions, it is now known that there are predisposing factors of a more constitutional nature. Thus, since 1904, through experimental work with mice and other animals, it has been known that there is a definite constitutional susceptibility to the disease. This is both of the so-called natural and the acquired type.

As a result of the important studies in heredity of Dr. Maud Slye, many believe that there is at least a transmissible predisposition to the development of cancer in mice. This knowledge is certainly of the greatest importance to clinicians, and many of the vagaries of the development and course of cancer in human beings can now be more or less satisfactorily explained. The principal advance is found in the knowledge that factors which determine the advent of cancer in the human being have to do not alone with the direct action of a biochemical agent or living organism on the cell, but also with equally important, and probably equally varied, causes which diminish the resistance of the individual to the disease.

It has been well said by several writers that the time has come when we should study cancers and not cancer. It has been shown that the local predisposing factors included under the head of chronic irritation are of the most varied sort. With the positive knowledge which we have acquired of certain neoplasms in animals in which the existence of a neoplastic virus has been definitely established, it is no longer possible to believe that there is such a thing as a single cancer parasite. We are face to face with the probability that if the various types of cancer are to any great degree caused by such viruses, there are many of them and probably each has marked specificity for one type of tissue. The discovery by Peyton Rous of a filterable agent which causes a spindle-cell sarcoma in chickens, and his more recent demonstration of two other types of sarcoma, one a clefted sarcoma with sinuses, and the other an osteochondrosarcoma, each caused by a specific virus capable only of producing that type of tumor and no other, show for these three viruses a degree of specificity which no one had ever anticipated. Rous' work is of epoch-making character in that he has demonstrated the existence of what was previously a hypothetic cancer virus.

Besides the tumors which he has studied there are several other neoplasms in the lower animals in which there is more or less definite evidence of infectivity. They are a round-cell sarcoma in the dog, spindle-cell sarcoma in German hares and the so-called adenocarcinoma of the thyroid in the salmonoid fishes. It may be stated for this entire group that we have either positively determined the infectious cause, as in the chicken sarcomas, or that we have arrayed an amount of evidence in favor of the parasitic nature of the others which places it almost beyond a reasonable doubt. It is, therefore, interesting to note that writers who are antagonistic to the parasitic hypothesis have classed these neoplasms as growths of undetermined status, whereas in reality they are neoplasms of determined or nearly determined status: the great bulk of neoplasms from which these authors would attempt to separate them are really the neoplasms of undetermined status. From this group we learn that although they have in common a positive or probable parasitic origin, yet the mode of operation of these known or nearly demonstrated viable causes indicates great points of difference. From them we learn that it is difficult to make sweeping generalizations on the probable causes of the great group of neoplasms of undetermined status. There is no longer any impropriety in speaking of a cancer virus because such a virus has arrived in the chicken sarcomas, yet the positive knowledge regarding cancer has been so meager in the past that the temptation is great to search the facts relating to cancers in general in the light of these specifically determined ones.

We have always defined neoplasm as a growth of cells deviating from the normal, which possesses the power of limitless growth, which infiltrates the surrounding structures, thus living at the expense of the organism, and which, when transplanted through the circulation or lymph, is capable in most cases of setting up secondary growths or metastases. Experiment has shown that a malignant neoplasm may not present at one time all the characteristics enumerated above. Thus the power to form metastases may be wanting, and in the course of transplanting the neoplasm this characteristic may appear. We have included in this group tissue growths of the most diverse character, even those resulting from proliferation of embryonic structures such as dermoids. These have but the slightest resemblance to genuine neoplasms. Theories regarding the nature of cancer, based on the similarity of embryonic development to the growth of tissues in pathologic conditions, are responsible for their inclusion. When finally the causative agents have been determined for each type within this group, we shall have a rational basis for the classification of neoplasms.

The existence of an immunity to transplanted cancer was established by the observation at the Gratwick Laboratory, by Clowes, Baeslack and myself, that mice which were inoculated with cancer of the breast sometimes recovered after the tumor had made appreciable growth, and that for a long period after such recovery they could not be successfully reinoculated with the same tumor. This observation was followed with the further observation by Clowes that in the particular cancer at that time under observation, the Jensen mouse carcinoma, if the blood of the recovered mouse was mixed with a suitable portion of the cancer to be transplanted, incubated for a period and then injected into an animal, it usually failed to grow. If the interpretation of this observation was correct, it proved the existence of a slight but definite passive immunity. The experiments of Crile and Beebe with the round-cell sarcoma in dogs strengthened these observations, these authors showing that if the blood of a dog, recovered from implants of the round-cell sarcoma in question, was transfused into an animal with growing tumors, in many cases a prompt regression with recovery occurred. Levin, working with a spindle-cell sarcoma in rats, reported experiments confirming the existence of an immune factor in the blood of recovered rats capable of inhibiting the growth of implanted sarcomas in these animals. Von Dungern, working with a spindle-cell sarcoma in rabbits, also obtained marked evidence of passive immunity. The conditions which surround observations of this kind in a given transplanted carcinoma or sarcoma in the mouse or rat are so variable that many observers have failed to confirm these observations. It is interesting to find that an investigator like Bashford, who has previously opposed the idea that the blood carries anything approaching antibodies, states in his last report that cancer cells in the mouse injected into the circulation of recovered or resistant animals are robbed of their power of proliferation.

The existence of a specific immunity in cancer was obscured by the observations of Schöne and others that a certain amount of resistance to the implantation of mouse cancer could be obtained by using normal tissues, either adult or embryonic. It was pointed out at once that it was possible that this form of resistance was of a different quality from the resistance in the animal which had recovered from cancer. It was possible that normal tissues produced a resistance in the animal to the transplantation of foreign cells, but that there was still a specific immunity to the disease directed against the cause and not against foreign cells implanted in the animal.

Attempts to inoculate tumors of an alien species into animals were first undertaken by Ehrlich, who succeeded in inoculating mouse cancer into rats or vice versa. They were found to grow for short periods. Later it was shown that in embryos, such as an incubated egg of the chicken, with proper technic, rat sarcoma or mouse cancer or other tumors of alien species could be grown indefinitely, thus indicating that the immune mechanism to tumors had not yet developed. As this applies also to alien normal tissues and bacteria, it may be assumed that in the chick embryo the entire immune mechanism is not yet established. These experiments, made by Murphy on the chick, have recently been extended by Bashford to very young mammals, and it would appear that here also the immune mechanism has not yet come into activity.

In this connection it is interesting to note that one of the most effective normal tissues available for setting up a resistance in animals to implanted cancer is the spleen. The first attempts to immunize with splenic tissue were made by Bridré and later by Woglom, and an extremely interesting contribution on this subject was made in 1911 by Braunstein of Moscow, who showed that removing the spleen in mice made them susceptible to the implantation of mouse cancer when they were otherwise resistant. Braunstein argued that the site of the resistance to cancer as well as to infectious diseases, and probably also to implanted foreign tissues, was in the lymphatic apparatus. He proposed that the splenic tissue of immunized animals should be used in the treatment of established cancer. His evidence, while not conclusive, is extremely suggestive of the correctness of his theory. He also observed that mice which had been splenectomized died in a few days after the injection of alien cancer without developing tumors, and viewed this as evidence of the destruction of the immune apparatus. In support of his theory he has made the following interesting points: First, the extremely rare occurrence of metastases in the spleen; second, the prompt destruction of transplanted embryonic tissue of the same species when implanted in the spleen; third, the demonstrated immunizing power of splenic tissue against malignant tumors; fourth, the rapid death of splenectomized animals when injected with cancer of other species, and fifth, the evidence pointing to the spleen as the principal source of all antibody formation of both bacterial and nonbacterial nature.

Murphy has recently been able to accomplish transplantation of heterotypic neoplasms, such as the Ehrlich mouse sarcoma, in the adult rat, by injuring the lymphatic apparatus of the hosts by repeated treatments with the Roentgen ray. At the time of his first publication on the subject he had succeeded in carrying the mouse sarcoma through three successive transplantations in rats thus injured, the growth varying from twelve or fourteen days to over thirty.

The difficulty of determining whether the immunity against cancer is a tissue immunity or a specific immunity against an agent was originally complicated by the observation that the best results were obtained with living cells, either normal or cancer cells. In 1910 we were able to report an interesting case of spindle-cell sarcoma of the jaw in a human being, which was influenced by injections of fresh rat sarcoma and later by injections of dried rat sarcoma material. We were led to attempt this experiment by an observation made in 1907, when it was found that in a slowly growing transplanted spindle-cell sarcoma of the rat, secondary and tertiary inoculations could be made to grow. By inoculating on each successive sixth day, twenty-five out of forty rats developed more than one tumor. These multiple inoculations proceeded side by side for a period equal to that usually required to kill, and then all of them retrograded, leaving the animals immune. This indicated that in some tumors there was a concomitant immunity set up by a first inoculation which could be stimulated by subsequent inoculations to a point at which it overcame the disease and brought about the regression of the tumors with cure. Since 1909, attempts have been made to influence human cancer by vaccinating with the patient's own cancer cells or with cancer cells from other human cases, and with some sporadic successes such as the cured case of cancer of the breast treated in this way and demonstrated at the Second International Cancer Congress by Bertrand of Antwerp, and several cases of sarcoma.

If a living cell were always required to produce the immunity to cancer, it would be impossible to demonstrate the existence of a specific immunity. Our own experiments with two cases of human sarcoma, favorably influenced three years ago and apparently now cured by the use then of dried, powdered rat sarcoma, strongly indicate that there is an immune mechanism opposed to the cause of cancer and not alone to the growth of cells. Extensive and important experiments to determine this question were again made in 1914 by Koenigsfeld, working in Pfeiffer's Laboratory in Breslau. This observer finds that a definite immunity against the growth of mouse cancer can be induced in susceptible mice by an intraperitoneal injection of small but increasing amounts of dried, sterile mouse cancer. This resistance can be produced against the most virulent tumors, and lasts for many weeks. In experiments to determine whether the dried powder of normal cells would induce a comparable immunity, he found that this was not the case. Whereas the living cells of the spleen, kidney or liver of the mouse produced the well-known resistance of previous investigators, the dried powder was devoid of such action. This author concludes that the protection thus obtained with dried tumor material is specific and probably due to the development of genuine antibodies.

When we realize that the dry tumor powder of Peyton Rous' chicken sarcomas contains the living virus which causes these neoplasms, we have at least a basis for extending the possibilities of these results. Rous has recently published an article on the immunity of transplantable chicken tumors and arrives at the following conclusions:

> The phenomena of natural and acquired resistance to transplanted chicken tumors strikingly resemble those observed in the case of transplanted mammalian growths; and no more than those do they suggest that the tumors have an extrinsic cause. That there may exist in fowls implanted with a chicken tumor a resistance directed against the tumor-causing agent distinct from the resistance manifested against the alien tumor cells has been shown in a previous article, both sorts of resistance in such an instance being acquired. That directed against the agent is largely specific, giving little if any protection against the agents causing other tumors. There is some evidence that the conditions on which a fowl's natural resistance depends are the same for the agents causing different chicken tumors.

The case, therefore, for the existence of a specific cancer immunity directed against the cause of cancer and not against a cell, which we strongly advocated before the International Cancer Congress in Paris, 1910, so far as Rous' group of tumors is concerned, is now demonstrated, and the striking similarity of the results obtained with his tumors, so long as transplanted tumors are used as the basis of his observations, shows how closely these tumors agree in behavior with the transplanted mammalian tumors in the smaller animals. In the light of our present knowledge of the immunity to cancer, we may review certain clinical facts which have impressed every observer of this disease. It has been shown in mice that when an animal is inoculated with a tumor, it promptly develops a certain amount of resistance to the growth of the tumor. If an attempt to inoculate it in the early stage with a second tumor is made, the second tumor will frequently not grow. If, therefore, it is known that the power of growth can be taken from cancer cells by treating them with the blood of recovered animals or by injecting them into the circulation of resistant animals, we have an explanation of the mechanism of metastasis formation.

Goldmann, many years ago, showed by careful histologic studies of cancer of the breast that individual cancer cells, in the early stages of the disease, penetrated into the blood vessels and were thus transported, but that in many cases they did not produce metastases. He reasoned from these observations that there was an immunity exerting itself through the blood. Experiment has now shown this to be the case, and we may assume that the resistance which is concomitant with the development of cancer even in man is the force which protects the organism from secondary growths; but when this immunity finally fails, this occurrence is marked by the advent of metastases. This type of immunity may be a tissue immunity directed against the cancer cell. This phase of the immunity may explain those cases in which early operation has not been successful in removing all of the cancer tissue, yet the growth has not recurred. These observations are also in accord with the theory that there is developed in the human being as well as in animals both a tissue immunity and a specific immunity.

That the blood in cancer cases contains antibodies or antiferments opposed to the cancer cell is clearly shown by the presence in such cases of reactions such as the deviation of complement reaction and the more recent Abderhalden reaction. All of these reactions are, however, non-specific. All of them are found in pregnancy, which is characterized by the growth of foreign tissues in the organism, and they are also found in certain other pathologic conditions associated with the destruction of tissue. It must be remembered that all these reactions are based on the use of antigens made from cancer tissue. As we have as yet no means of isolating even the known viruses from the protein constituent of the cells, it is impossible to determine whether or not a specific reaction can be perfected for a given cancer. That such reactions as the Abderhalden are non-specific is shown by an interesting clinical observation. The antibodies in the blood in pregnancy are opposed to the growth of the embryonic epithelium of the chorion in the placenta, and it is believed that they serve to protect the mother from the invasion of her tissues by these cells. Now there is an especially interesting type of carcinoma which develops in the chorion epithelium and is known as chorion carcinoma, and chorion carcinoma has been known to develop during the course of pregnancy in the face of the Abderhalden reaction, which thus shows that the antiforces demonstrated by this reaction are opposed strictly to the normal chorionic epithelium and not to the agent which brings about the change in its structure in producing a cancer. The non-specific nature of the Abderhalden reaction is further illustrated by an interesting case, reported by Versé, of a woman in the fifties who was found to have a marked Abderhalden reaction, and examination showed that she had a developing chorion carcinoma from a previous pregnancy.

Experiments made many years ago in our institute showed that the growth of implanted cancer in a mouse could be expedited by repeated and prolonged anesthesia with ether and chloroform. It was not determined whether the anesthetics produced their apparent injury to the immunity directly in the blood or by an injury to the spleen and lymphatic apparatus, but these experiments suggested that prolonged anesthesia at operation in the case of cancer in human beings might be a very prejudicial factor in the subsequent history of such cases. Every surgeon has had the disheartening experience of finding cancer cases promptly made worse by surgical interference.

Something similar has been noted in the treatment of tumors by radiation. Thus we find Lazarus, in 1914, warning radiologists to protect the spleen and lymphatic apparatus, and by experiment showing that there is a degree of radiation which greatly stimulates the growth of tumors. He says that by the photographic method he has been able to demonstrate in a case of cancer of the uterus treated for twelve hours with 86 mg. of mesothorium in the cervix, that the entire organism was affected by radiations. Plates which he laid over the lungs, the heart, the liver, the spleen, the kidney, the ovaries and the tibia during the period showed pronounced blackening. It is possible that the explanation of these remarkable results of Lazarus is to be found in recent observations indicating that the serum and red blood cells of the blood can take on photo-activity as the result of exposure to the Roentgen ray. Eden, at a recent meeting of the Natural Science and Medical Society of Jena, reported experiments which indicate that the red blood cells and serum after exposure to the Roentgen ray have a slight but distinct power of reducing photo silver on plates. These experiments were made by exposing the blood in vitro in petri dishes, and producing the blackening of photographic plates through the usual layers of black paper. If the blood serum and red blood corpuscles are capable of carrying radio-activity, then the remote injury to the lymphatic apparatus and the results obtained by Lazarus might be explained.

Tyzzer and Duvane have recently shown that injection of small amounts of radium emanation in the circulation of mice causes a prompt and extensive destruction of the lymphatic apparatus, and other observers, working with the Roentgen ray and radium, have shown the same phenomenon. The frequency with which cases treated with radium or the Roentgen ray show marked stimulation of growth with rapid fatal termination may well be explained as an injury to the lymphatic apparatus with a loss of immunity. The whole picture of cancer from a clinical point of view must now be viewed in the light of the facts pertaining to immunity, and we may also begin to consider the existence of viruses or infectious agents as the cause of the disease. The existence of specific cancer viruses in chickens entitles us to this point of view. The general similarity of the immune phenomena in experimental animals, correlated with many facts which occur in the clinical course of human cancer, strongly suggests that such agents will be found to play a more or less extensive rôle in the cancers of undetermined etiology.

In closing, it may be asked what has become of the inclusions in cancer. It may be stated that specific inclusions are more or less characteristic of a considerable group of infectious diseases caused by filterable viruses. These inclusions have been gathered together by Prowazek into a group of protozoan organisms to which he has given the name of clamydozoa. The diseases are variola, vaccinia, trachoma, hydrophobia, molluscum contagiosum, epitheliosis desquamativa conjunctivae, inclusion blennorrhea, verruga peruviana, contagious epithelioma of birds, yellow blight of silkworms, alastrim, sheep pox, and probably hog cholera, scarlet fever, varicella, Samoa-pox and lesions with Kurloff bodies. In all of these diseases there are quite distinct and characteristic inclusions in the cells. At the meeting in 1913 of the German Pathological Society, Rocha of Hamburg presented a paper on this group of inclusions as organisms. In the discussion we find authorities like Marchand frankly agreeing that the questionable bodies in several of these diseases, but particularly molluscum contagiosum, are parasites. There are thirty-odd known filterable viruses. From the list already given it is to be seen that they cover a very wide range of diseases, and among them must now be included the three specific viruses causing neoplasms discovered by Rous. It is interesting also to remember that but recently Noguchi has cultivated the virus of hydrophobia. The scope of cancer research is thus tremendously broadened. It is possible that at a later date we shall know the true significance of inclusions in these diseases and in cancer, and the question of their significance may well be left to future investigation.

As stated early in the paper, one of the most fruitful advances in cancer research must be a realization of the fact that cancer no doubt represents a great group of pathologic changes having many points of similarity which have led us to classify them under one head, cancer. Within this group there must be a great range of agents, probably a number of specific viruses which we have yet to discover and to study. The cancer problem will never be taken by assault as Ehrlich once stated, but it will be broken up into a great field which will require many years of patient and extensive work of many investigators.

PREVALENCE OF SYPHILIS AMONG THE INMATES OF THE GOVERNMENT HOSPITAL FOR THE INSANE

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The following investigation was undertaken for the purpose of obtaining further information with regard to the prevalence of syphilis among the insane in this country. There seems to be comparatively little accurate information bearing on this topic, probably because there are few insane asylums in which the Wassermann reaction is performed as a routine procedure.

Ivey[1] reported the results of a Wassermann test among the negro insane of Alabama. The test was performed in every case in the asylum, with the following results: 357 males were examined, of whom 90, or 25 per cent., were positive; 349 females were examined, of whom 102, or 29 per cent., were positive. Among the 90 males positive, 48 showed clinical signs of syphilis, and among the females positive, 49 showed clinical signs. It is an undoubted fact that syphilis is more common among the negro race than among the white race, and therefore these figures give little information as to the prevalence of syphilis among the white insane.

Matson,[2] who applied the Wassermann reaction in the study of the insane in 1910, says:

> The importance of syphilis in the psychic infirmities is indicated by our examination of 470 inmates of the Oregon State Insane Asylum. Nearly 20 per cent. gave positive reactions while only 5 per cent. gave specific histories, and none presented visible or clinical manifestations. . . . Nearly 15 per cent. of 51 cases of dementia praecox were positive, while none gave a syphilitic history. Sixteen per cent. of 151 cases of paranoia were positive. Twenty-five per cent. of 40 cases of chronic mania were positive, 20 per cent. of 26 cases of chronic melancholia were positive, and 20 per cent. of 62 cases of dementia were positive.

Mitchell[3] states that at the Warren State Hospital for over a year, the Wassermann test has been used in the examination of all new cases. He says:

> The percentage of syphilitic cases among our new admissions is of primary interest. During the last year 18.5 per cent. of female admissions showed positive serum on the first test, and 22.3 per cent. of the males gave the same result.

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[1] Ivey: The Wassermann Reaction in Negro Insane, Med. Rec., New York, 1913, lxxxv, 712.

[2] Matson: On the Application of the Wassermann Reaction in General Medicine, Based upon 968 Examinations with Especial Reference to the Blood of the Insane, South California Practitioner, 1910, xxv, 49.

[3] Mitchell: General Paralysis of the Insane, New York Med. Jour., 1914, c, 605.

Southard[4] says:

> The best information available to me as to the general percentage of syphilis to be found in mental cases is that afforded by our experience at the Psychopathic Hospital covering 1,671 separate random tests on different persons. Two hundred and sixty-four of these 1,671 persons were determined to show syphilis so far as the Wassermann reaction carried out under the precepts of the original method can be trusted. I consider that there is no better set of data available for Massachusetts. This will be found to work out a percentage of 14.7 per cent. for our psychopathic intake.

Unfortunately Southard gives no data as to the class of mental cases examined, as to the proportion of males to females, etc.

The Government Hospital for the Insane, Washington, D. C., is an institution maintained by the government for the care of those who become insane while in the public service. All soldiers, sailors and federal prisoners who become insane are sent to this institution, and all insane for the District of Columbia are here provided for.

While the majority of the patients are white males, there are a considerable number of females, and a fair sprinkling of negroes from the District of Columbia.

The Wassermann reaction has been performed at this institution by one of us (Hough) for several years in selected cases, but such cases afford no index of the prevalence of syphilis among the inmates as a whole. More lately the Wassermann has been performed as a routine procedure on each new inmate, and in addition a complete study of the spinal fluid, including a Wassermann, a cell count and protein estimation has been performed on all suspected cases. In this way we have a record of 616 cases, taken just as they come, in which the Wassermann test was made by Dr. Hough.

The technic used by Dr. Hough is that recommended by Landsteiner, Müller, and Potzl.[5] Three units of sheep-rabbit amboceptor are used with a 10 per cent. alcoholic extract of beef heart. In this preparation of the extract the tissue is macerated at 56 C. (132.8 F.) for two hours and then kept at room temperature. If this extract is kept on ice, its strength is markedly reduced.

The results obtained in these cases may be tabulated as in Table 1.

TABLE 1.—RESULTS OF WASSERMANNS IN SIX HUNDRED AND SIXTEEN CONSECUTIVE CASES

	Number Examined	Double Plus	Plus	Plus Minus	Negative Wassermann				Total Syphilitic Counting all but Plus Minus Wassermanns	
					Paresis	Cerebral Lues	Increased Cell Count	Undoubted History	Number	Per Cent.
White males	374	42	4	3	11	4	5*	7	73	19.51
White females	83	0	0	0	0	0	0	0	0	0
Colored males	93	11	2	4	1	1	0	7	22	23.65
Colored females	65	6	1	1	0	1	0	0	8	12.30
Total	616†	59	7	9	12	6	5	14	103	16.72

* All of these cases had a positive Noguchi test for protein; the cell counts were respectively 9, 20, 120, 88, 160.
† One Indian is included in this total.

In discussing these results, it becomes necessary to interpret the readings of the Wassermann reaction. In general, it may be said that the reaction performed in these cases was very conservative, in that no use was made of the more recent cholesterinized antigens, and in the use of three units of complement instead of two. From these facts we may make the following deductions:

1. The double plus reactions are absolutely indicative of an existing syphilitic infection.

2. The plus reactions may also be accepted as a positive indication of syphilis. Most of these plus reactions would have been double plus, had a cholesterinized antigen been used with two units of complement. In this connection it is interesting to note that of these seven plus reactions, one was a case of paresis, two occurred in cases of cerebral lues, two in patients having questionable histories, leaving only two of the seven that were not confirmed by the clinical history.

3. The plus minus reaction, while not diagnostic, is extremely suggestive of the presence of a syphilitic infection. However, in order to be on the safe side, no plus minus reactions have been counted.

Of the 616 cases, forty-two were diagnosed paresis and fifteen were diagnosed as cerebral lues. Twelve of these cases of paresis and six of the cases of cerebral lues had a negative Wassermann. They had, however, an increased cell count and protein content in the spinal fluid. While there may be some question as to whether these were truly cases of paresis or of tertiary syphilis of the brain, there can be no question as to the syphilitic nature of the lesion, and no one would hesitate to include these cases among the syphilitics. The same may be said of the other five cases having increased protein and high cell counts. The fourteen cases with a positive history are cases having an undoubted history of syphilis with treatment in the past, but in which all the laboratory findings were either negative or, with the exception of the Wassermann, were unobtainable.

Accepting these findings as correct, several interesting points are brought out:

1. There was no syphilis demonstrable among the eighty-three white females. There are a number of known syphilitics among the white females in the institution at the present time, but it so happened that none fell within the period covered by this survey. The number of females included in this group is so small that it is manifestly undesirable to draw definite conclusions from them. It seems clear, however, that syphilis among white females in this institution is comparatively rare.

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[4] Southard: Statistical Notes on a Series of 6,000 Wassermann Tests for Syphilis Performed in the Harvard Neuropathological Testing Laboratory, Boston Med. and Surg. Jour., 1914, clxx, 947.

[5] Landsteiner, Muller, and Potzl: Ueber Komplementbindungsreaktionen mit dem serum von Dourinetieren, Wein. klin. Wchnschr., 1907, xx, 1421.

2. The percentage of syphilis among the colored males (23.65) agrees fairly closely with the figures obtained by Ivey (25 per cent.).

3. The percentage of syphilis in colored females (12.30) was much below that reported by Ivey (29 per cent.). The number of colored females examined was, however, very small, and studies that have been made by one of us, and which will be published later, indicate that Ivey's statistics for colored females are probably much more accurate than those obtained by us in this small group.

4. The total percentage of syphilis actually found in the 616 cases (16.72) is somewhat higher than the figures reported by Southard for Massachusetts (14.7 per cent.). This might be because we are dealing with a different class of cases, but we do not think so. We are rather inclined to think that it is because our figures are not based on a Wassermann reaction alone, but on a Wassermann reaction in association with the clinical diagnosis and an examination of the cerebrospinal fluid. Matson's figures were higher (20 per cent.).

5. Even by these methods, not all cases of syphilis are detected. In addition to the cases which we have tabulated as syphilitics, twenty-six other cases with negative Wassermanns had a history of having had a chancre. We cannot with scientific accuracy include these cases as positively proved syphilitics, but the probability that these additional twenty-six cases (4.2 per cent.) were syphilitic is very great. If so counted, this would raise the percentage of all cases to 20.92.

TABLE 2.—RESULTS OF WASSERMANNS IN SIX HUNDRED AND SIXTY-SEVEN RANDOM CASES

		Double Plus		Plus		Plus Minus		Minus	
		No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Hough	235	17	7.23	5	2.12	5	2.12	208	88.51
Vedder	432	30	6.94	58	13.42	96	22.22	248	57.40
Total	667	47	7.04	63	9.44	101	15.14	456	68.36

6. There were forty-two cases diagnosed paresis, and fifteen cases diagnosed cerebral lues. Adding to these the five cases having increased cells and globulin, we have sixty-two cases, or 10.06 per cent., of the insane in this institution whose insanity is directly due to syphilis. Probably the percentage is higher than this.

A further series of 667 cases was undertaken. These included the insane from several buildings taken at random with no other method of selection than to take every man in the building. The patients included were all white males, but patients with paresis and cerebral lues were seldom housed in these wards, and only five such cases are included in these 667 cases. In 237 of these cases the Wassermann reaction had been performed by Dr. Hough in the course of his duties. In the remaining 432 cases the Wassermann was performed by Vedder at the Army Medical School, using the technic described by Craig[6] with a cholesterinized human heart antigen. The results of these tests may be summarized as in Table 2.

In considering these results, it must be remembered that when a cholesterinized antigen is used in the Wassermann, a higher percentage of positives is obtained. The fact that Hough, using a non-cholesterinized antigen, obtained 7.23 per cent. double plus, while Vedder, with a cholesterinized antigen, obtained only 6.94 per cent. of double plus reactions, appears to contradict this view. This is due, however, to the fact that the reactions performed by Hough were mostly on men suspected of having syphilis.

Counting double plus reactions alone, it will be seen that 7.04 per cent. of this series of male white insane, from which cases of paresis and cerebral lues were practically excluded, are undoubtedly syphilitic. This figure, however, is undoubtedly too low, and a much closer approximation to the facts will be obtained by counting both double plus and plus reactions. In this way we find that of a total of 667 cases, 110, or 16.48 per cent., are syphilitic. This of course is an estimate, but it is a too conservative estimate. It has been our experience that in the great majority of plus reactions returned, investigation has shown that the patient was syphilitic. In a recent article on the efficiency and specificity of the heart cholesterin antigen, Walker[7] states that he tested this antigen on 400 negative cases in a 1:6 dilution in place of the usual 1:10 dilution. But even when used in this strength a plus reaction (50 per cent. inhibition of hemolysis) was obtained in only eight cases. It follows from this that a plus reaction with a 1:10 dilution, which we always used, is very strong evidence of the existence of syphilis.

Further, if the reactions performed by Vedder with the heart cholesterin antigen are considered alone, and both double plus and plus reactions counted as syphilitic, we find that eighty-eight cases, or 20.26 per cent., show evidences of syphilis. This estimate is not believed to be excessive; for, granting that some of the plus reactions are from non-syphilitic cases, it must be remembered that there are undoubtedly more cases of syphilis missed among the plus minus and negative reactions than are necessary to counterbalance the few false positives included under the plus reactions.

The most efficient Wassermann reaction will miss a considerable percentage of syphilis. In a recent investigation by Vedder and Borden,[8] 744 inmates of a soldiers' home were studied. It was found that by using the Wassermann reaction alone and counting both double plus and plus reactions, 20.8 per cent. of syphilitics were detected, while by using both Wassermann and luetin tests on the same men, 45.4 per cent. of syphilitics were detected. This indicates how far the Wassermann reaction, even when both double plus and plus reactions are counted, will fall short of the facts when a considerable proportion of the cases tested are latent, tertiary or treated cases. Many of the patients included in our series of 1,283 cases were old men who had become insane in various of the soldiers' homes.

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[6] Craig and Nichols: Studies of Syphilis, Bull. 3, War Dept., Office of the Surgeon General, p. 72.

[7] Walker, I. C.: The Specificity of Cholesterin with Syphilitic Serums and of Cholesterin-Reinforced Heart Antigen in the Wassermann Reaction, Arch. Int. Med., October, 1914, p. 563.

[8] Vedder, E. B., and Borden, W. B.: A Comparison of the Wassermann and Luetin Reactions in 744 Individuals, The Journal A. M. A., Nov. 14, 1914, p. 1750.

We, therefore, estimate that there are 20 per cent. of syphilitics among the male white insane at this institution, excluding cases of paresis and cerebral lues. It was shown above that paresis and cerebral lues furnish at least 10 per cent. of the total male admissions to this insane asylum. It is, therefore, apparent that we may estimate that the percentage of syphilis among all male insane is at least 30 per cent. This estimate will appear too high to many observers, but it must be remembered that if an equal number of female insane, among whom the percentage of syphilis is lower, were included, these figures would be only slightly higher than those quoted by Southard. It is to be expected that the percentage of syphilis among the insane will be higher than among the same class of men who are not insane. One of us has statistics which will be published later that indicates that about 20 per cent. of the young men of the community, of the class that enlist in the army and navy, are infected with syphilis. If this is correct, the 30 per cent. of syphilis among white insane males is exactly accounted for by supposing that the insane are affected by syphilis to exactly the same percentage as similar males who are not insane, plus the 10 per cent. that accumulate in the insane asylum because of paresis and cerebral lues.

As the result of a study of 1,283 cases we reach the following conclusions:

1. Syphilis among the white women in this institution is comparatively rare.
2. Among white men the presence of syphilis has been demonstrated in 20 per cent. of the cases.
3. We estimate that at least 30 per cent. of white males in this institution are syphilitic.
4. At least 10 per cent. of the insanity in this institution is directly attributable to syphilis.

DISCUSSION

Syphilis is recognized as the cause of insanity in the case of patients suffering from paresis or cerebral lues. It follows as a matter of course that such patients, when committed to an asylum, should receive antisyphilitic treatment, but the treatment actually received is usually insufficient in amount. In addition to these clear cut cases of syphilitic insanity, there are many patients in all asylums suffering from various types of mental disturbance who are also infected with syphilis. It may be presumed that syphilis does not act as a direct cause in the production of dementia praecox, for example, yet in a person whose mentality is already weak, the addition of a syphilitic infection may be sufficient to precipitate a mental breakdown just as any other unusual physical or mental strain might produce a similar result. It follows that if such patients received vigorous antisyphilitic treatment there might be considerable improvement in their mental condition following the improvement in general physical tone resulting from such treatment.

It is believed, however, that it is the exception rather than the rule for this to occur. Few patients when committed to an insane asylum have received a careful physical examination including a Wassermann reaction. After commitment to the asylum, the attention of the physician and attendants is naturally more or less concentrated on the mental symptoms. In many asylums for the insane, the Wassermann reaction is not performed as a matter of routine in all inmates, and experience amply demonstrates that often the most careful physical examination fails to detect syphilitic infections. As a result, many patients remain in asylums for years with an untreated syphilitic infection. It appears to us that it would be better for the patients if more time were devoted to the administration of salvarsan and less to the determination of whether the mental condition is paranoia or the paranoid stage of dementia praecox.

In other words, the psychanalysis of deranged mental states has proved so interesting that the treatment of the diseased organs underlying some of these states has been somewhat neglected. It is not too much to urge that a Wassermann should be made on the blood of each new inmate admitted to an asylum. In all suspicious cases this should be followed by a lumbar puncture and a Wassermann, cell count and protein estimation of the spinal fluid. And last but not least, all cases in which syphilitic infection is demonstrated should receive active conscientious antisyphilitic treatment.

We wish to express our thanks to Dr. William A. White, superintendent of the Government Hospital for the Insane, who afforded us the opportunity to do this work, and to Dr. Alfred Glascock of the Government Hospital for the Insane, who very kindly sent us many of the blood specimens for these examinations, and for other favors extended during the course of the work.

THE VALUE OF THE WASSERMANN REACTION

WITH A DISCUSSION OF THE TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM *

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It has seemed to me that too much dependence has been laid on the Wassermann reaction and that many physicians rely altogether for their diagnosis on the positive or negative reports, and that as a consequence clinical interpretation has been more or less neglected. I have come to the conclusion that the percentage of errors in the diagnosis of specific diseases of the nervous system were no greater in the pre-Wassermann days than at the present time, when an equally large number of mistakes are made by depending too much on serum tests and not enough on the clinical symptoms. The clinician should regard the Wassermann test as a symptom which helps in the diagnosis, but not as a principal factor in the case.

Regarding the Wassermann reaction itself, I do not do the laboratory work and have no comment to make regarding the technic and the methods employed. But in a rather large experience with serologists, both in private and in hospital practice, I have come to the conclusion that it makes a great deal of difference as to who performs the test. To begin with, serology should not be a side issue. It is too important to be anything but the main work of any physician. Secondly, with the various technics and

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* Read before the Philadelphia County Medical Society, Jan. 13, 1915.

reagents used by different individuals, it is not at all infrequent to receive different reports on the same specimen from two or more serologists. Consequently, until all laboratory men agree to use the same technic and the same type of reagents, it will be impossible to have uniform results.

I agree altogether with Kaplan,[1] who says:

> I believe the attitude of the serologist is a greater factor in the Wassermann reaction than is the standardization of the reagents. . . . Syphilis should not be diagnosed in the laboratory, nor should the laboratory worker consider himself competent to give the final decision. . . . The general function of the laboratory worker is not so much to detect every syphilitic, but to protect the non-luetic individual from a wrong diagnosis and useless treatment.

Perhaps one example of many similar instances that I have come across will serve to illustrate what, I have no doubt, is a frequent occurrence in the experience of other physicians. Within several weeks I saw, in consultation with a physician, a man of 40 with nervous symptoms which I clinically diagnosed as due to syphilis. The patient himself acknowledged a chancre and told his family physician that he had syphilis; but because of the absence of the usual secondary symptoms this was doubted. He had a Wassermann test made which was reported as negative, and he was not given specific treatment because the physician depended entirely on this report for his diagnosis. A subsequent Wassermann made under my direction showed a very strong positive Wassermann reaction.

I do not want to be understood to mean that I do not value the Wassermann reaction. For years I have been and am still doing laboratory work in the field of neuropathology, and consequently I know the value as well as the weaknesses of laboratory findings; but it is time that the clinician should know and appreciate that the Wassermann reaction is not an infallible test, and that it is the greatest mistake to depend on its findings for a diagnosis. The clinical symptoms should always be the first and last word in the diagnosis of any syphilitic condition.

While many errors are due to lack of uniform technic, it is a fact, however, that the Wassermann reaction is absent both in the blood serum and in the cerebrospinal fluid in certain types of syphilis of the nervous system, and it would be well if a definite statement could be made as to the types of nervous involvement in which this is the case, if such a thing is possible.

It must now be acknowledged that a specific infection is possible without the appearance of a chancre or of the so-called secondary symptoms. The reasons for this are either that the infection is very mild or the resistance of the tissues is such that it overcomes the toxic invasion. Then again, syphilis may appear in the guise of a neisserian infection. These facts are most important, for it is these mild cases of syphilis which later on are followed by tabes, paresis and other kindred diseases of the nervous system.

Inasmuch as the laboratory tests differ according to the site of the lesion, a word or two might be said as to the present views held regarding syphilitic diseases of the nervous system. To begin with, whatever the clinical manifestation, the cause is the *Treponema pallidum*. It has been established that there is no essential difference between the histologic findings in the nervous system and other organs of the body, and further that there is practically no histologic difference between the so-called primary, secondary and tertiary stages.

Until the present, nervous syphilis has been divided into the active or direct manifestations and the so-called parasyphilitic diseases in which are chiefly included tabes and paresis. The old idea was that in a direct involvement there was either a cellular infiltration or a gummatous deposit in the meninges and vessels or in the nervous tissue itself, while the so-called parasyphilitic diseases occurred years after the infection and were due to a toxin only indirectly connected with syphilis. We know now that this is wrong and that there is no essential difference between the so-called direct and parasyphilitic diseases, for in both the pathologic process is due to the *Treponema pallidum,* and the clinical picture is different only because in direct syphilitic diseases the meninges and vessels are implicated, whereas in tabes and paresis the essential nerve structures, that is, the nerve cells and the fibers coming from them, are chiefly involved. While in direct syphilis it is possible to remove the syphilitic infiltration and gummatous deposits by treatment, such a thing is impossible if the nerve cells and their fibers are diseased, because once degeneration has occurred, nothing can stop it, even though it were possible to remove the *Treponema pallidum,* the source of the irritation.

The causes which lead syphilitic infection to localize itself in the nervous system or any other organ of the body are not definitely known. The theory that there is a special treponeme which has a tendency to be followed by nervous syphilis must be abandoned. It is possible that in some individuals the nervous system is the point of least resistance. Certain it is that those infections which occur in the head are more likely to be followed by cranial syphilis. No one knows the percentage of cases of general syphilis which are followed by nervous lesions.

The syphilitic virus may act on the nervous system in two ways: by a general dissemination through the blood stream, and most commonly, by means of the perineural lymphatic spaces which surround every peripheral nerve and which extend along the posterior roots to the spinal pia, they being in direct connection with the adventitial lymph spaces of the perforating vessels. In this way it is possible for the poison to be disseminated directly to the nervous structures.

It is assumed by some neurologists that in the early active stage of the infection the posterior columns of the spinal cord are thus affected, leaving behind some treponeme, and that possibly years later the treponeme for some reason becomes active, and degeneration takes place in the sensitized posterior columns, this producing the symptoms of tabes dorsalis. A similar involvement of the frontal lobes may be followed by general paresis.

It is most important to be able to diagnosticate this primary invasion. It is possible that the early stupor and pyrexia which is sometimes present in the so-called secondary stage may be indicative of a meningitis. Numerous authors, among them Ravaut, Altmann and Dreyfus, have examined the cerebrospinal fluid of acute syphilitics in whom there were no nervous symptoms, and found evidences of meningeal irritation, as shown by increased tension, abnormal quantity of albumin and a definite lymphocytosis. In some instances the treponemes were found in the fluid.

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[1] Kaplan: Serology of Nervous and Mental Diseases, 1914.

One other factor in the diagnosis of nervous lesions must be taken into consideration. To any one, like myself, who has examined innumerable sections of the brain and cord, the fact has been established that the clinical symptoms are hardly ever in accord with the pathologic findings, and the best that can be said is that the clinical symptoms indicate only the site, but not the extent and nature of the lesion. This must be borne in mind when considering the therapeutics of nervous syphilitic infections, for often, for example, it is difficult to make a clinical differentiation between paresis and brain syphilis.

It is much more important in nervous cases to study the cerebrospinal fluid than the blood serum; for while a positive reaction in the serum indicates syphilis, it does not necessarily indicate that the nervous system is implicated, while a positive reaction in the cerebrospinal fluid is present only when the nervous system is diseased.

The cerebrospinal fluid is studied not only for the Wassermann reaction, but also for the number of cells, from four to eight being the normal number per cubic millimeter. In a specific infection, the number of cells depends on the activity of the meningeal irritation, the greater this being, the larger the number of cells, as many as 2,000 per cubic millimeter being found by some observers. As a rule, the greater the cell count, the stronger the Wassermann reaction. The globulin test should also be made, excess of this being present always in active syphilitic disease.

As a routine measure, whenever syphilitic disease of the nervous system is suspected, the serum Wassermann is always taken first. In a patient in whose case there is no history and no treatment has been given, a so-called weak positive reaction should not be accepted as conclusive. Other tests should be made, preferably by a number of serologists, and the cerebrospinal fluid examined. If there are present the symptoms of spinal syphilis, the Wassermann reaction will always be positive, the globulin will be in excess and the cell count will depend on the meningeal irritation. The serum Wassermann will nearly always be positive. If the brain is involved as well as the spinal cord, the serology will depend on the extent of the spinal disease. If the brain alone is affected, the cerebrospinal fluid may either be negative or the Wassermann reaction fleeting, whereas the blood serum is generally positive. The reason for this is that there is very little active communication between the fluid of the brain and spinal cord, and in the usual lumbar puncture the cerebral fluid is hardly ever touched because there is always a certain amount of stasis in the lower part of the cord.

In early cases of tabes the serum Wassermann may be negative, while the Wassermann reaction in the cerebrospinal fluid is nearly always positive. In the active stage of tabes, the Wassermann reaction is always positive in both the serum and in the fluid, whereas, in the declining stage, it may be negative in the fluid and positive in the serum. It must be remembered, however, that the pathologic process in tabes, in common with other syphilitic diseases of the nervous system, may become quiescent and remain in this stage for years. I have at the present time under my care a patient who has had the symptoms of tabes for thirty-five years without the slightest active manifestations. In these cases the fluid as well as the serum may be entirely negative.

The cell count in tabes is never higher than about 100. In most instances the pleocytosis is about from 40 to 60. In the declining stage the cell count may be normal.

The clinical picture of paresis, especially in those cases which come under observation in private practice, are most commonly of the tabetic type and are better known as taboparesis. From the beginning, the Wassermann reaction in the spinal fluid is always strongly positive, and remains so to the end. The cell count is not very large, from about 30 to 60, although this depends on the extent of the spinal cord involvement. The serum Wassermann may be negative at first, but in a well-established case, it is always positive. It must of course be understood that the serum reactions may be altered by treatment, as will be discussed later. One of the important differential points between paresis and brain syphilis is that treatment will never cause an eradication of the Wassermann reaction in the cerebrospinal fluid, whereas in brain syphilis this can be done.

It is, however, in another type of patients that the laboratory findings are even more important. They are the cases of men and women, around 50 years of age, in whom there are present the more or less indefinite symptoms of cerebral arteriosclerosis. In many there is a history of early syphilis with subsequent mercurial and iodid treatment. The Wassermann reaction in the serum as well as in the fluid may be negative, and there may not be an increased cell count, yet these patients under active syphilitic treatment get well or improve largely. It is in these cases that the clinical judgment is better than the laboratory finding.

I sometimes use Lange's colloidal gold test in the cerebrospinal fluid, as well as the luetin test of Noguchi, but as a rule, in the majority of cases, a diagnosis can be made without the aid of either. The former, as is well known, is a help in the diagnosis of paresis, while the latter is perhaps the most sensitive of all syphilitic tests.

TREATMENT

After the clinical diagnosis is made and before treatment is instituted, an examination should be made not only of the blood serum but also of the cerebrospinal fluid, for the treatment should be guided largely by the nature of the findings.

The quantity of drugs given should first of all depend on the general condition of the patient. Seven years ago in a paper on syphilis of the nervous system,[2] I advocated the abandonment of the use of potassium iodid. I have never found it of the slightest benefit in syphilis of the nervous system. I believe in the intensive use of both salvarsan and mercury. In a patient in whom the clinical and serologic findings are such as to indicate vigorous treatment, my plan is to get the patient under the influence of salvarsan as quickly as possible and to give, depending, of course, on the age and general condition, an intravenous injection of salvarsan every three or four days until about five doses, that is, about 2.5 gm. of salvarsan have been given. Then if there are no contra-indications and the patient is in good condition, and the clinical and serologic findings indicate that treatment should be kept up, he is given a series of four or five intraspinal injections by the Swift-Ellis method, the plan being to give both series of treatments in the course of two months. At the end of that time the patient is sent home for a month with instructions to use inunctions of mercury every other day or have mercury given in the form of salicylate or biniodid, by hypodermic injection into the gluteal region.

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[2] Weisenburg, T. H.: Am. Jour. Med. Sc., April, 1908.

My reasons for this plan of treatment are as follows: Whether the patient has an active cerebrospinal lesion, tabes or paresis, there is almost always a meningeal and vascular implication, for it is in rare instances that the parenchymatous structures are involved alone. This being the case, the *Treponema pallidum* can be reached in the meninges and vessels by diffusion of the salvarsan in the blood stream. After this is accomplished, the Swift-Ellis method is used because it is supposed that it gives a more direct means of approaching the treponemes which are buried within the parenchymatous structures, as is the case with tabes and paresis.

Further treatment, of course, depends on the results that have been obtained. If the Wassermann becomes negative and the cell count normal, no further treatment is given excepting that the mercury is kept up at less frequent intervals, more or less indefinitely, and the patient is examined from time to time with the view of finding out the progress of the disease. If, however, the results are not good, a second series of intravenous and intraspinal injections are given, but this time at much longer intervals, preferably every two weeks.

As to the results of treatment: They have been on the whole excellent in certain types of cases. One learns by experience when to give, and what is more important, when not to give salvarsan. I use salvarsan in preference to neosalvarsan. I have not had bad results because I have been careful and have insisted always that even after an intravenous injection the patient be kept in bed over night; and although in some cases my patients have not obeyed my orders, I have fortunately not had bad results. The Swift-Ellis method reacts differently on different patients. I have not had serious complications, although one patient was unable to void urine for forty-eight hours and had to be catheterized. I have learned never to give a second spinal injection until the patient has altogether recovered from the previous one. Nearly always it takes a patient a longer time to recover from each successive injection.

As to citation of more definite cases and results: In spinal syphilis, cerebrospinal syphilis and cerebral syphilis, the results have been splendid and better than could have been obtained from mercury alone. Practically all symptoms disappear which are dependent on the meningeal irritation, and only those remain which are the result of implication of the parenchymatous structure, as happens when a thrombosis of a vessel occurs with a consequent necrosis of the part, or what is more common, when there is an atrophy of the nerve cells and the fibers coming from them.

In tabes my results have been good only in those cases in which there has been great meningeal irritation, that is, the pains have lessened, the patients have slept better and the general condition has improved vastly, but there has not been a return of knee jerks, pupillary reflexes or any of the symptoms which are dependent on permanent destruction of nervous tissue. I found that the Swift-Ellis treatment cannot always be given in tabes because the reaction is terrific in some instances, the pains being excessive, the patient having very marked pyrexia, and in one patient the reaction was so profound that it took him about a month to recover. One cannot expect in this disease to cure what has already been destroyed, but it is possible to prevent further active inflammation, at least so far as those pathologic processes are concerned which are the result of the treponeme located within the vessels and meninges.

In paresis my results have not been good, but as has been previously stated, it is impossible in early paresis to make a differential diagnosis from cerebral syphilis. Therefore it is important to institute prompt and vigorous treatment in all early cases. I have a striking example under my care at the present time. This patient, a young man about 37, who had a specific infection about eight years ago, manifested early paretic symptoms last summer. He became emotional and difficult to manage, and had almost rigid pupils, paretic speech, lost reflexes and typical serologic findings, that is, a strongly marked Wassermann in the serum and fluid, a cell count of 80 and globulin excess. He has been given so far sixteen intravenous injections and six Swift-Ellis treatments. At the present time his cell count and globulin are normal, the serum Wassermann is negative, but the fluid reaction is still positive. The patient is apparently in as good mental condition as he has been in a number of years, yet the fact that the fluid Wassermann persists is indicative that the treponemes are still active within the nervous tissue, and the chances are that the patient has brain syphilis and not paresis, for if the latter were the case the probabilities are that the Wassermann would have been positive in both the serum and fluid. Whatever benefits have resulted from treatment are due to the healing up of the meningeal and vascular processes, but we have not been able to reach the treponemes within the nervous structure. It may be that this is a case of paresis in which this exceptionally vigorous treatment has brought about these results.

In this case I have seen what I have always doubted; the pupils at first were almost rigid; now they react very promptly. Nonne reports similar observations in four cases.

I have used the direct injection of neosalvarsan in the spinal canal. In one instance it was given for me in a case of general paresis, and the reaction was milder than in some of the Swift-Ellis injections previously given. A subsequent injection in the same patient caused his death within forty-eight hours. As a consequence, I am afraid of this method and have not used it since. I have had no experience with the mercurial injection into the spinal canal as practiced by Byrns of Baltimore.

As I have tried to emphasize in the early part of my paper, it is as important for the welfare of the patient to know when not to institute treatment. In a patient in whom the cell count is small and the Wassermann reaction is either faintly positive or negative in the cerebrospinal fluid, the Swift-Ellis method should never be employed, although salvarsan may be given intravenously a number of times, but the effects should be carefully watched, and if the patient does not react well, this treatment should cease. If, on the other hand, the patient improves, the treatment should be kept up. For example, in the tabetic previously mentioned, in whom there have been no active symptoms for thirty-five years, the cell count was thirteen and the fluid Wassermann negative, but the serum Wassermann was faintly positive. This patient suddenly developed shooting pains in his chest which, as demonstrated by the clinical symptoms and Roentgen ray, were due to a necrosis of the thoracic vertebrae and impingement of the posterior roots. Intravenous injection of salvarsan caused cessation of the pain. Three injections were given with good results. In such a patient it would have been unwise to give more vigorous treatment or spinal canal injections.

In the cerebral arterial cases already referred to, in which there is sometimes a history of syphilis, and in which the serologic findings are sometimes entirely negative, I find that mercurial treatment is much better than salvarsan. In these patients weekly injections of a grain of salicylate of mercury in the upper outer part of the buttock is of the greatest benefit. Occasionally I advise the giving of salvarsan in moderate doses, but this should be carefully watched, and if any untoward results occur should not be repeated.

In conclusion, I wish to emphasize the efficacy of early and intensive salvarsan treatment. It should be the aim of the physician to eradicate or to stop the active syphilitic process within four or five months, if such a thing is possible. Further, the deaths that have resulted from this treatment, in my opinion, are due to the careless handling of the patients, and if physicians would insist on their patients remaining in bed at least over night after an intravenous injection, no bad results would be obtained. Besides that, one should take the precaution to keep the patient in bed over night after lumbar puncture. I have seen some disastrous results in patients who were allowed to walk immediately after lumbar puncture.

I have not detailed the serologic findings in the cases in which these observations were made, feeling that the general results were, after all, the most important. The laboratory work has been done for me chiefly by my assistant, Dr. P. DeLong, and also by Dr. E. P. Corson-White, and most of the treatments by the former under my direction.

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INVOLVEMENT OF THE NERVOUS SYSTEM DURING THE PRIMARY STAGE OF SYPHILIS

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In a recent publication,[1] we set forth the results of our findings with respect to the early involvement of the nervous system in secondary syphilis. In the paper referred to, it was found that between 60 and 70 per cent. of all cases of syphilis which progress to the secondary period show some change in the spinal fluid indicative of participation of the nervous system. These studies are being continued, and we now feel that our figures at that time were conservative and that in all probability every case of syphilis which reaches the secondary period has more or less involvement of the cerebrospinal axis. Certainly, in each case, the brain, cord and meninges, together with the other systems, receive their quota of the treponeme from the blood stream.

In the continuation of our studies, we have had the opportunity of studying a number of cases of syphilis in the primary stage, that is to say, syphilis in which, of the clinical manifestations, only the chancre was present. Similar studies have also been made in the late literature by Wechselmann,[2] M. Fraenkel,[3] Leopold,[4] Knick and Zaloziecki,[5] and Altmann and Dreyfus.[6]

Wechselmann[2] reports six cases of primary syphilis in which there were positive findings in the cerebrospinal fluid. In but three of these cases were there any subjective symptoms referable to the nervous system. Two had headache, and in one there was facial palsy. In the second volume of his classic work on "Die Behandlung der Syphilis mit Dioxydiamidoarsenobenzol," Wechselmann places himself on record as believing that even as early as the primary period, or as he states it, in the preroseolar period, the large lymph spaces of the central nervous system are the site of specific infection, together with characteristic changes in the spinal fluid.

M. Fraenkel[3] investigated two cases in which the chancre alone was present. In both cases the cerebrospinal fluid, as well as objective neurologic findings were negative. In the thirteen remaining cases reported by him, the syphilis had progressed to the secondary period, and these cases are therefore not considered here.

The largest number of cases of primary syphilis which have been studied with reference to the possible involvement of the nervous system are reported in a monograph by Leopold.[4] This investigator reported his results in sixty-seven cases of which, however, but sixteen were cases in which the chancre alone was present. In six of these cases he was able to demonstrate changes in both the fluid and in the nervous system itself. In seven, a careful examination of the central nervous system showed a suggestive evidence of involvement with little or no change in the fluid. In three cases there was no change in either the fluid or the nervous system. The subjective and objective findings described were: changes in sensibility, increased reflexes, particularly on one side, positive Babinski, headache, Romberg, inequality of pupils and differences in pupillary reaction.

Knick and Zaloziecki,[5] in a study of the involvement of the eighth nerve in early syphilis, report a positive finding in one case of primary syphilis, together with very definite changes in the spinal fluid. This, however, occurred following an injection of salvarsan, and therefore may be regarded as in the nature of a Herxheimer reaction, and as such should perhaps be separated from the cases under discussion in this paper.

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[1] Wile and Stokes: A Study of the Spinal Fluid with Reference to Involvement of the Nervous System in Secondary Syphilis, Jour. Cutan. Dis., September, 1914, p. 607.

[2] Wechselmann: Ueber intralumbaler Injektion von Neosalvarsan, Deutsch. med. Wchnschr., 1912, No. 31, p. 1446.

[3] Fraenkel: Ueber das Vorkommen der Wassermann Reaction im Liquor Cerebrospinalis bei Fällen von frischer primärer u. secondärer Syphilis, Ztschr. f. ges. Neurol. u. Psychiat., 1912, No. 11, p. 1.

[4] Leopold: Ueber nerven Symptome bei frischer Syphilis, Arch. f. Dermat. u. Syph., 1914, cxx, 101.

[5] Knick and Zaloziecki: Ueber Acusticuserkränkungen im Frühstadium der Lues . . . *mit spezieller Berücksichtigung der Liquoruntersuchung*, Berl. klin. Wchnschr., 1912, No. 14, pp. 639, 693.

[6] Altmann and Dreyfus: Salvarsan im Liquor Cerebrospinalis bei Frühsyphilis nebst Ergänzenden liquoruntersuchungen in der Latenzzeit, München. med. Wchnschr., 1913, Nos. 9 and 10, pp. 464 and 530.

Altmann and Dreyfus[6] had the opportunity of studying the cerebrospinal fluid in eight cases of syphilis in the primary stage. Of this number, two showed changes in the fluid indicative of central nervous involvement.

During the past year, we have been able to study six cases of primary syphilis, in all of which careful examinations were made with respect to the nervous system, including an examination of the fundus oculi and of the auditory nerve. Such examinations were made in conjunction with carefully made spinal punctures.

MATERIAL AND METHODS

Since the publication of our previous paper on early involvement of the central nervous system in syphilis, the routine puncture of all syphilitics has been undertaken in this clinic. In this connection it has been possible to make a careful study of six primary cases presenting lesions in which no signs of the generalization of the infection, as manifested in the skin or mucous membranes, had as yet appeared. The difficulty of persuading such patients, as yet unimpressed with the seriousness of their condition, to remain in the hospital sufficiently long for the necessary examinations explains the smallness of the number reported.

The methods employed in the study of these cases are essentially the same as those outlined in our previous communication. Each patient was subjected to a thorough examination of the fundus oculi through the courtesy of Professor Parker. In the same way, the condition of the eighth nerve was examined through the courtesy of Professor Canfield. Professor Camp very kindly carried out a neurologic examination of each case. Lumbar puncture was performed in five of the cases, and attempted in the sixth, but owing to a scoliosis and the patient's refusal to cooperate, the canal could not be entered. The cell counts were made after the method of one of us (J. H. S.), by staining with polychrome methylene blue, 1 drop being added to 2 c.c. of the fluid, and the count being made after the lymphocytes had taken the stain. Nonne-Apelt determinations of the albumin and globulin content were made in four cases, simple boiling in the other two. For the purposes of this report, the cases are abstracted under the following items: First, age of the primary lesion. This represents the portion of the stage of secondary incubation elapsed in each case before our investigations were made. Second, adenopathy. This was noted as a possible early index of the generalization of the infection. Subjective symptoms, prior treatment and general health were then considered. The neurologic examination scheme included the deep reflexes, pupils, extra-ocular palsies, paralyses, Romberg and Babinski signs, gait, sensory changes and miscellaneous signs such as the Kernig signs and stiffness of the neck. Cells, albumin determination and Wassermann reactions were done on the spinal fluids. A Wassermann on the blood was also taken in all but one case.

CASE REPORTS

The following brief summaries of the cases studied are here presented in advance of the itemized statement of the findings:

Case 1.—D. C., man, aged 23 years, whose family and past history were unimportant, reported that a papule developed two weeks *post coitu*, and had been present for six weeks when he entered. Patient had had one month of indifferent and irregular treatment with pills. The general health was unimpaired, and there were no signs of eruption, mouth or throat lesions or constitutional involvement. Examination showed a morphologically typical primary lesion on the glans penis with marked satellite adenopathy but no recognizable general lymphatic involvement. There were no secondary manifestations. The *Treponema pallidum* was no longer demonstrable in lymph from the primary sore. The fundus was negative except for beginning arteriosclerotic changes, the eighth nerve slightly involved, general neurologic examination negative throughout, puncture unsuccessful, Wassermann on the blood positive.

Case 2.—N. S., man, aged 24, with unimportant family and past history, and excellent habits as regards alcohol and tobacco, had a double primary lesion with complicating Ducrey infection, of five weeks' duration. His health was unaffected, and there were no signs of generalization except a general adenopathy, well marked. Examination showed an erosive balanitis with two indurated plaques in the foreskin. There were pipe-stem lymphangitis of the dorsum of the penis, and bilateral satellite bubo. No previous treatment had been given. The fundus showed a definite neuroretinitis. The eighth nerve was negative. General neurologic examination was negative. Puncture showed a fluid with a cell count of 7, positive albumin on boiling and a plus-minus Wassermann reaction. The Wassermann reaction on the blood was strongly positive. Violent headache for a week followed puncture. A very vigorous salvarsan-mercury treatment was undertaken, with rapid improvement in the local condition, and entire suppression of secondary manifestations.

Case 3.—T. F., man, aged 37, with unimportant family and past history, reported that the lesion had developed on the penis four days *post coitu* and had been present for five weeks. Induration and inguinal adenopathy had been noticed for the past ten days only. No treatment had been received. The general health was unimpaired. On examination, the lesion presented the picture of a hunterian induration developing on the border of a deeply eroding chancroid. Dark-field examination demonstrated an abundance of typical *Treponemata pallida*. There were no other skin or mucous membrane lesions. Adenopathy was local only. Fundus examination showed a definite neuroretinitis. The eighth nerve was negative. Knee and Achilles reflexes were increased and the station was uncertain in the Romberg test. Puncture showed 5 cells per cubic millimeter, a negative albumin test (boiling) and a positive Wassermann. There was no reaction to the puncture. Wassermann on the blood was positive.

Case 4.—C. J. D., man, aged 38, with negative family history, is a heavy drinker. A large indurated primary lesion with secondary balanitis developed three weeks *post coitu*. Duration of primary lesion was four weeks. Only local treatment had been given. There were no general symptons, headache, etc. Patient had, however, noticed a marked exaggeration of his unusual nervousness. Examination disclosed a complete phimosis, the foreskin boardlike and rigid near the frenum. There was pipe-stem lymphangitis on the dorsum of the penis, and marked inguinal, but no general, adenopathy. Numerous *Treponemata pallida* were demonstrated by dark field in lymph aspirated from the base of the chancre. The fundus oculi showed arteriosclerotic changes with neuroretinitis, and the eighth nerve was involved. Pupils were sluggish and unequal, knee and Achilles jerks increased, Romberg positive. Puncture yielded a fluid with 200 cells per cubic millimeter, Nonne-Apelt was positive in a dilution 1:4, and Wassermann on the spinal fluid was negative. The blood for the Wassermann reaction was accidentally lost.

Case 5.—L. W., man, aged 22, with unimportant family and past history, had noticed the primary lesion a week before entry. The primary incubation period is somewhat indefinite but was apparently about five weeks. There were no secondary manifestations, subjective or objective. Adenopathy was local. The primary lesion consisted of a small superficial eroded plaque on the corona near the frenum.

The lesion had scarcely attracted the patient's attention. *Treponema pallidum* was demonstrated by dark field, in large numbers. Fundus examination showed a low-grade neuroretinitis with early choroidal changes. The eighth nerve was negative. Knee and Achilles reflexes were increased and the patient had lost the localizing sense in the toes. Lumbar puncture showed a fluid with 15 cells per cubic millimeter, a Nonne-Apelt positive 1:1 and albumin positive on boiling. Wassermann was negative on the fluid. The blood was Wassermann positive. Patient suffered a severe reaction from the puncture.

Case 6.—N. J., man, aged 20, with family history negative, had good habits as regards alcohol and tobacco. The exact incubation period was not known, but did not exceed three weeks. There were no subjective symptoms and no cutaneous manifestations, but considerable pallor and a general adenopathy with a remarkably large bilateral satellite bubo. The primary lesion was perfectly typical, small and seated on the foreskin. The *Treponema pallidum* was demonstrated by dark field. Fundus examination showed a mild neuroretinitis, examination of the acoustic apparatus a definitely decreased bone conduction. Neurologic examination was negative. Lumbar puncture yielded a spinal fluid with 5 cells per cubic millimeter. Nonne-Apelt was negative. Wassermann was negative. There was a severe reaction to the puncture. Wassermann on the blood was positive.

This case exhibited very definitely an early involvement of the nervous system in which there was as yet no meningeal reaction detectable by changes in the spinal fluid.

SUMMARY AND FINDINGS

Of the six cases thus reported, none can be rated as entirely normal in all the particulars of the examination. The nearest approach to normal was Case 1, which exhibited only slight involvement of the eighth nerve, and it is of interest that this is the only case in which treatment, even though only the relatively inefficient administration of pills, had been instituted. The entire lack of all subjective symptoms such as, headache, malaise, nocturnal pains or nervous irritability in the series, is noticeable.

The duration of the secondary incubation period up to the time of examination averaged five weeks in four of the cases. In one of the cases, the inconspicuousness of the lesion made its age a matter of uncertainty, and in another, the patient was ignorant and unobserving. Here, too, it is interesting to see the sinister possibilities of the inconspicuous or unrecognized primary lesion, illustrated by the fact that the former case was one of the most definitely positive, from the point of view of central nervous involvement, in the series.

Palpable general adenopathy would seem also to be unreliable here as a test of the generalization of the infection from the primary source. So far as could be detected, a general adenopathy was present in only two of the six cases (2 and 6).

In our previous communication, attention was directed to the sensitiveness of the optic nerve as an index to central nervous involvement. In this series of six cases in the secondary incubation period of the disease, spread of the infection from the primary source would seem to have occurred in advance of frank cutaneous or systemic signs of the extension. In five, there was a neuroretinitis; early choroidal changes had occurred also in one case, and arteriosclerosis, possibly alcoholic, in another.

Auditory nerve involvement was well marked in one case with negative fluid, was slight in degree in two cases and had not occurred at all in three.

Positive neurologic findings were present in three out of the six cases. In all three the deep reflexes of the lower extremities were exaggerated. In two, the station in the Romberg test was affected (Cases 3 and 4). In the case of the alcoholic, the pupils were sluggish, and unequal. Case 5 showed a sensory disturbance in the toes.

The findings in the cerebrospinal fluid constitute the most tangible evidence available of the fact that meningeal reaction to syphilitic infection in the so-called secondary incubation period had already occurred well in advance of any of the more obvious and familiar signs of dissemination. Four of the fluids examined presented some abnormality. The cell count was above the normal in two (Cases 4 and 5). Special attention is directed to the remarkable pleocytosis in Case 4 (200 cells). The predisposing influence of chronic alcoholism may deserve consideration in explaining this high count. The albumin and globulin content was definitely increased in three out of four cases, the increase being most marked in association with the pleocytosis, and reaching its maximum in the alcoholic patient (Case 4). The Wassermann reaction, on the other hand, was the least sensitive index in the series, being a doubtful positive in two and a flat negative in three of the latter cases exhibiting the most striking changes in cells and globulin. The occurrence of any one of these three changes, independent of the other two, in the spinal fluid in syphilis is well illustrated by this series, and corroborates the findings in our previous study.

The Wassermann reaction on the blood was already positive in the five cases examined, and there is little reason to doubt that it would have been positive in the remaining one.

From our studies and from those of others cited above, we are inclined to the belief that actual involvement of the cerebrospinal axis may be present without any of the changes in the spinal fluid so generally accepted as criteria of central nervous involvement. These changes, however, are probably slight and for the most part, as stated in our recent publication, transitory, similar to the roseola which occurs on the skin. That they may, and not infrequently do, precede the secondary skin and mucous membrane eruptions, is now an established fact.

It is generally accepted that involvement of the meninges is paralleled by a pleocytosis in the spinal fluid. The cases, then, in which there is central nervous involvement without obvious changes in the cerebrospinal fluid are probably in the nature of involvement of the nerve tissue itself, rather than of the meninges.

The presence of the positive Wassermann in the fluid, or of the increased lymphocytic count, or of the increase in organic solids as indicated by the Nonne-Apelt and boiling tests for albumin, while they may be considered as delicate tests, are nevertheless arbitrary and not constantly present in syphilitic disease. Any one of the three may be present independently of the other two. The presence of any of these three does not necessarily mean that they mark the initial stage of central nervous change. A slight change in the cerebrospinal axis may be sufficient to give rise to clinical evidence of involvement, and yet such change may be insufficient to cause, at the time of puncture, a definite change in the cerebrospinal fluid. Obviously, a negative test in the cerebrospinal fluid is therefore only of value in negating the presence of involvement, in the entire absence of clinical symptoms as determined by careful examination of the nervous system itself. As was mentioned, seven of Leopold's cases showed a definite involvement of the nervous system with such symptoms as positive Romberg, Babinski, increased reflexes on one or both sides, and changes in sensibility without any change demonstrable in the spinal fluid at the time of puncture.

We should like to advance the possible theory that the time of puncture in a given case may have considerable to do with the positive changes present, it being a well known fact in general paresis, for example, that frequent punctures in such cases undergoing no treatment show a great variability in the objective findings. It is possible, therefore, that in a case with definite nerve changes and without spinal fluid changes, the latter might well be present at a subsequent puncture without increase of clinical signs present.

CONCLUSIONS

1. The nervous system may be and probably is frequently involved before there are other evidences of the hematogenous spread of the *Treponema pallidum* from the site of the initial sore.
2. Such involvement may be slight as far as clinical symptoms go, and may not be accompanied by changes in the spinal fluid, as measured by our present methods.
3. Serious involvement, however, may occur extremely early with very marked changes in the cerebrospinal fluid, and with definite impairment of nervous function.
4. The clinical changes most commonly noted in this preroseolar period are: headache, involvement of the second and eighth nerves, and increased reflexes. Of these, the headache is most commonly associated with demonstrable changes in the spinal fluid.
5. Absence of any of the three accepted criteria of nervous system involvement in the spinal fluid can be accepted as negating the presence of syphilis of the brain, meninges or cord only when a careful examination fails to reveal any symptoms pointing to involvement.

THE TREATMENT OF INTESTINAL AMEBIASIS

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The field of "amebic dysentery" and its treatment has been so intelligently covered by recent investigations and reports that I feel considerable reluctance in reporting my small experience in the use of amebicides.

Recently I have found my resistance weakening by having read several articles lauding one single drug as the therapeutic agent in the successful treatment of amebiasis.

Amebiasis is one of the many diseases, which, because of its intestinal complications and sequelae, presents a protean symptomatology. Although the work of Strong and others has given a much more comprehensive knowledge of amebiasis, there still exists considerable confusion in the interpretation of symptoms and signs leading to an accurate diagnosis and prognosis. As has been substantiated, amebiasis may exist in a mild or even advanced form without dysentery, and dysentery may persist for months or years after amebic ulceration without amebiasis. Nothing has been more convincing of the existence of amebiasis without dysentery than my observation of five cases of hepatic abscess of amebic origin, in four of which there was no history obtainable of dysentery at any time preceding hospital residence for liver abscess. In all four, intestinal amebiasis did exist, and in none did dysentery occur after operation. As to dysentery after amebiasis: it has been my experience that after apparent cure of amebic dysentery, diarrhea, abdominal pain, tenesmus, tympanites and distention, with disturbances of digestion incident to colonic dyscrasiae, persist for months or years after the disappearance of *Entamoeba histolytica.*

During my service at the department hospital, Manila, P. I., I observed, while assistant to Captain L. L. Smith, on the medical service, a case of perforation which at necropsy showed typical amebic ulcerations and gangrene of colon. This case gave no history of dysentery and had no diarrhea preceding or following perforation.

DRUG TREATMENT

Advances in the treatment of intestinal amebiasis by drugs has been along scientific lines, and there is no doubt that we have in ipecac and its alkaloid the drug par excellence as an amebicide.

Ipecac has been successfully used in English and American practice (in the tropics), and Rogers, after Vedder's experiments with ipecac and emetin (alkaloid), applied the alkaloid to treatment. Since then emetin has been the drug of choice because of the ease with which it is administered and the absence of the emetic manifestations on the patient of large doses of ipecacuanha. Emetin is one of the most valuable agents we have in the treatment of intestinal amebiasis, but it has been my experience that hypodermics of emetin hydrochlorid alone will not cure amebic dysentery.

My experience covers fifty cases observed during my tour of duty in the Philippine Islands, and the results of treatment have been uniform.

I am convinced that emetin hydrochlorid, while a valuable amebicide, if used alone will not cure amebic dysentery and that relapses will soon occur. The same statement is equally true of ipecac used alone. After an experience with each of these drugs used alone I have reached the conclusion that emetin given by hypodermic, accompanied or followed by the use of ipecacuanha by mouth, will cure most cases of intestinal amebiasis.

This combination of treatment was first used successfully without a consideration of its rationale, based on the pathology of the disease and the therapeutic influence of the drugs. Later the happy results of this combination seemed to be justified by the character of the lesions. It would seem that emetin hydrochlorid would be amebicidic to those entamebas which were in contact with the blood stream, that is, those deep in the ulceration, but would have but little effect on those in the intestinal canal or the edges of the ulcerations. The reverse is true of ipecac; the drug given by mouth (by its emetin content) destroying the entamebas in the intestinal canal or outer margins of the ulcerations but not penetrating deeply into the irregular excavations.

Ipecac has the disadvantage of producing nausea and vomiting, but it has been my experience that emetin hydrochlorid after several administrations produces a tolerance to ipecac which markedly lessens or prevents the disagreeable effects of ipecacuanha.

The method of administration used at the department hospital, Manila, P. I., was as follows:

Emetin hydrochlorid 0.008 gm. by hypodermic for ten days (twice a day for four days and once a day for six days). Ipecac started about the eighth day with from 1.5 to 2 gm. doses given at bedtime, continued for three consecutive nights and thereafter decreased by 0.3 gm. each consecutive night. The disagreeable effects of the ipecacuanha were never manifested. It is quite necessary to precede the administration of ipecacuanha by tinctura opii in from 0.6 to 1 gm. doses.

Happy though the results of this combination may be in treating amebiasis, the fact should not be overlooked that emetin is an amebicide and has little to do with the healing of ulcerations. Every case of amebiasis should, after this treatment, be considered one of ulcerative colitis and so treated from a dietetic point of view. At the same time every effort should be made to enhance resistance by change of climate, tonics, etc., to obviate the distressing sequelae characteristic of the disease.

UNUSUAL CASE OF SINUS THROMBOSIS

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MEDICAL NOTES, BY DR. HEIMAN

Thrombosis of the lateral sinus subsequent to acute otitis media is not uncommon. It usually gives definite signs and symptoms, is accompanied by a positive blood culture and is readily diagnosed. The following case, however, from the pediatric department of Dr. Koplik in Mount Sinai Hospital, in which the patient was seen during my summer service, transferred to the otologic service of Dr. Whiting and operated on by Dr. Ballin, is deemed worthy of special mention on account of several unusual features, namely:

1. The difficulty of diagnosis.
2. The blood culture results.
3. The finding of bacteria in the blood by means of smears.
4. The continuance of the septic temperature for weeks after the removal of the thrombus.

M. S., boy, aged 8½ years, had had measles and whooping cough in early childhood. Three weeks before admission he had been treated for a left-sided pneumonia complicated by bilateral otitis media. Paracentesis of both ears had been performed. Seven days prior to admission the patient apparently had entirely recovered; there was no cough, ear discharge or fever. Two days preceding admission, the child complained of headache, and the temperature rose to 102 F., followed next day by chills, sweats and a temperature of from 105 to 106. There was no ear complaint or ear discharge. On admission, July 14, the child seemed apathetic; there were no signs of meningitis, typhoid or pneumonia; there was slight congestion of the right ear drum but no mastoid tenderness.

Up to the time of transfer to the otologic service, the patient had a distinctly septic type of temperature ranging from 100 to 106.8 F., the daily rises occurring between 8 and 12 p. m., and being accompanied by chills and profuse sweats. Numerous blood counts showed a leukocytosis ranging from 15,000 to 41,000, with a polynucleosis averaging about 75 per cent. Examinations of the blood for malarial plasmodia were repeatedly negative. The urine never contained pus cells. The Widal test was persistently negative. A blood culture taken on July 16 by Dr. Rosenson of the pathologic department failed to show a bacteriemia.

The most important clinical notes on the progress of the case for the first ten days follow:

July 15: Spleen felt just below free border of ribs.

July 16: Dulness with diminished breathing at right base posteriorly.

July 18: Exploratory right myringotomy by Dr. Ballin. Accessory sinus examination, also by Dr. Ballin, negative.

July 19: No discharge from paracentesis wound. Spleen increasing in size. Two chills in past two days. Roentgen ray shows lungs clear. Von Pirquet negative.

July 20: Paracentesis thoracis, right scapular line, negative.

July 22: Numerous crepitant râles at bottom of right axilla with slight dulness.

July 24: Examination of ears negative.

July 24, a second blood culture was taken by Dr. Piller. At 9:30 p. m., while the temperature was at its maximum, 106.8, a smear of the blood, taken with strict aseptic precautions by Dr. Morris Kush, one of the interns, stained with filtered Gram's stain, and controlled by a spread taken from his own blood, showed many Gram-positive cocci, single, in pairs, and in short chains, suggestive of streptococci. The blood culture reported next day showed the *Streptococcus hemolyticus*. The patient was immediately transfered to the otologic service for operation, with the diagnosis of right lateral sinus thrombosis.

Although the history and course of this case suggested an otologic origin, a definite diagnosis of lateral sinus thrombosis, in the absence of a positive blood culture, was practically impossible. Acute pyelitis, malaria and typhoid fever were all excluded, and yet before the result of the blood culture, it was not considered justifiable to attempt operation for only a suspected sinus disease.

The blood culture taken one day before operation was positive; one taken a few hours before operation, negative. The result of the latter culture may be explained on the generally accepted theory that, in a case of bacteriemia of pyogenic origin in which there is a distinct focus of pus, bacteria may be disseminated into the blood stream from the original focus, only at certain intervals, these crises manifesting themselves clinically by chills, sweats and a very high temperature. In these cases, bacteria may sometimes be demonstrated only at the height of the temperature. Dr. Libman[1] has given various other causes for the occurrence of negative blood cultures in these cases.

The third unusual feature, the finding of bacteria in the blood smear, deserves a word of comment. Fried and Sophian[2] found that bacteria could be demonstrated, by their procedure in 97 per cent. of cases in which the blood culture was positive, and in a few cases in which the blood culture was negative. Their method is rendered more reliable than the one employed above, because of the filtration of all their staining materials through a Berkefeld filter. It can be performed in a short time, whereas the blood culture cannot as a rule be reported definitely in less than twelve hours, at least. The time-saving factor in cases similar to the one cited is extremely valuable; the sooner the diagnosis, the earlier the operation; the earlier the operation and the removal of the bacteria-disseminating focus, the greater the chances of recovery. There is very little doubt, therefore, of the value of blood-smear examinations in cases of suspected sinus thrombosis.

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[1] Libman, E.: A Further Communication on the Importance of Blood Cultures in the Study of Infections of Otitic Origin, Tr. Ninth Internat. Cong., Boston, Aug. 12-17, 1912.

[2] Fried, G. A., and Sophian, A.: Investigations Concerning the Value of the Microscópic Examination of the Blood for Bacteria, Am. Jour. Med. Sc., 1911, cxlii, 88.

The fourth unusual feature, the continuance of the septic temperature after operation, will be commented on by Dr. Ballin in his report of the surgical phase of this case.

SURGICAL NOTES, BY DR. BALLIN

From the foregoing history, it is readily observed that the supposition, that the focal infection giving rise to symptoms of a general septicemia had its origin in the sigmoid sinus, was based entirely on the laboratory findings of the blood.

July 16: Five days after the patient's admission into the hospital, an aural examination was requested. I found the patient somewhat apathetic and drowsy, and lying quietly in bed apparently displaying little interest in the things going on about him. He did not complain of pain or distress of any nature. Examination of the ears revealed an absolutely normal condition of the left drum and mastoid region. The right drum was slightly reddened in the posterior, superior quadrant, but not bulging. There was no aural discharge of any nature. Hearing was not in the least impaired. Deep pressure exerted over the mastoids and along the course of the jugular veins did not elicit the slightest pain. There was no rigidity of the neck or any other sign of meningeal irritation. There were no symptoms indicative of a labyrinthine involvement, no nystagmus or disturbance in coordination. Examination of the eyes was negative. In other words, there were no clinical aural manifestations which could be held accountable for the septic condition of the patient.

July 18: Two days later, I was called on to make another aural examination, and found the same conditions present. As the slight redness in the right drum still persisted, I decided to make an exploratory paracentesis to ascertain whether there was perhaps some secretion retained in the epitympanic space. Examination on the following day revealed merely a small linear incision covered with a small hemorrhagic clot, but nothing more.

July 24, that is, ten days after admission, all factors having been excluded which could be held accountable for the general septic condition of the patient, a history of a previous double otitic suppuration, although of a mild nature and only of a week's duration, and the finding of a positive blood smear and blood culture, as Dr. Heiman mentioned above, permitted the tentative diagnosis of a sinus thrombosis. The patient was thereupon transferred to the ear service of Dr. F. Whiting for exploratory operative interference.

Although there were evidences of a marked sepsis, the general condition of the patient was excellent. The temperature on the day previous to operation reached 106.5, falling again to 99.5 the following day. The pulse ranged from 115 to 94, and respiration from 20 to 28. The blood count showed: white blood cells, 41,000; polymorphonuclears, 62 per cent.; lymphocytes, 38 per cent. The aural condition had not changed. No tenderness or pain had developed over the mastoids or jugular regions. There were no glandular enlargements or pain in the throat on swallowing. In other words, there were no active aural manifestations except the slight redness of the right drum.

As this was therefore the only factor which could be looked on as indicative of a latent otitic complication, and as an exploratory procedure was imperative, it appeared most expedient to expose the corresponding mastoid bone and lateral sinus.

RIGHT MASTOIDECTOMY, CURETTAGE OF THE SIGMOID SINUS, AND EXCISION OF THE JUGULAR VEIN

The patient was prepared in the usual manner. The mastoid was incised, and the periosteum, which was very adherent, pushed back. The bone was chiseled away and found to be exceedingly hard, in fact somewhat ebonized. There was no destructive process evident, so that the entire mastoid appeared normal. As the antrum was approached from the rear, a large quantity of pus was evacuated. This seemed to be so completely shut off from the tympanic cavity through the formation of granulation tissue, that one could now readily understand why the paracentesis, performed some days before, was not followed by any suppurative discharge. The bone over the sinus, which was also apparently sound, was then removed down to the bulb and backward for a distance of about 2 inches. There were no granulations or erosions on the sinus wall, but the sinus itself appeared somewhat discolored. It felt more tense than usual, and palpation revealed an increased transmitted pulsation. To ascertain the nature of its contents, I decided to aspirate, and to my astonishment withdrew a large quantity of pus.

Being thus assured that we were dealing with a suppurative process in the sinus, it was tamponed above and below and incised. In it were found a large quantity of pus and a well-organized parietal thrombus, which had the appearance of a solid cord completely obliterating the lumen of the vessel. Later bacteriologic examination of this clot and pus showed the presence of a large number of hemolytic streptococci, similar to those found in the blood smear and culture.

The sinus was not curetted at once, but packed temporarily. I then resected the internal jugular, and a part of the facial veins. The vein appeared full, and, as a subsequent microscopic examination showed, had not undergone any marked pathologic changes. It was excised from a point above the entrance of the common facial vein down to the clavicle. A portion of the facial vein was likewise resected.

The skin was sutured and a rubber tube drain introduced. Having done this, our attention was again directed to the sinus. The previous incision was enlarged, and with a small curet the thrombus was removed in the direction of the bulb, whereupon a large quantity of pus welled up. In like manner we curetted backward, where a similar condition was found. The entire contents, as it appeared, having thus been removed, the tampons were gently removed, whereupon a free flow of clear blood ensued from both ends. The wound was then firmly packed and dressings applied.

The condition of the patient after this operation was very good. The blood culture taken one-half hour before operation was reported negative. Another culture taken one and one-half hours after operation was also negative.

For the following two days the temperature remained below 100; there were no chills and no subjective complaints. On the third day, July 28, the temperature rose suddenly to 103, accompanied by chills. There were no heart or lung complications and no embolic phenomena. The patient complained of pain in his left ear, and the mastoid appeared somewhat sensitive. Examination of the drum showed a slight redness. There were a slight rigidity of the neck and a Babinski on the left side.

Another blood culture was reported negative. Blood count showed: white blood cells, 11,500; polymorphonuclears, 64 per cent.; lymphocytes, 36 per cent.

July 28: The wounds were dressed and found clean.

July 29: The dressings were changed; there was a slight swelling under the angle of the jaw due to retention of pus, which was expressed. The temperature ranged between 99 and 101.5.

July 31: The symptoms in the left ear and mastoid subsided. The wound in the neck was beginning to heal. The mastoid wound was covered with healthy granulations.

August 4: The eyes examined by Dr. Wolff showed a moderate choked disk. The patient became somewhat more apathetic and drowsy; he complained of feeling cold, and the temperature rose suddenly to 103. There was a slight cough, but examination showed that the lungs were clear. The veins of the scalp appeared prominent. There were no apparent signs of meningitis. The color was rather pale. Examination of the throat was negative. The heart action was rapid and irregular. There was a systolic murmur over the pulmonic area, and the second sound was reduplicated. The spleen was felt one finger below the ribs.

Blood culture taken at this time was reported positive and again showed the presence of hemolytic streptococci. Blood count was: white blood cells, 17,600; polymorphonuclears, 84 per cent; lymphocytes, 16 per cent.

The reappearance of the positive culture could be explained in two ways: first, that there was still some septic focus in the side previously operated on which had not been entirely removed, and secondly that there was, perhaps, a sinus involvement in the ear which had not been operated on, in spite of the fact that all clinical manifestations pointing in that direction were wanting. One of the pediatrists and the internists were inclined toward the latter view, basing their opinions on the fact that an almost similar condition existed in the other ear prior to operation, and thought that an exploratory procedure was indicated. I did not believe that the ear which had not been operated on was the cause of any trouble, and consequently did not feel justified in exploring this side.

After some hesitancy, however, it was finally decided to lay open again the sinus previously operated on, more freely, to see whether there was still another septic focus which perhaps could be held accountable for the return of the positive blood culture.

EXPLORATION OF THE RIGHT SIGMOID SINUS

August 5, the wound was reopened and the sinus exposed, whereupon only a mild bleeding ensued. The bone was removed far back toward the torcular, following the course of the sinus. A small curet was gently introduced into the lumen of the vessel, and with this as a grooved director, the sinus wall was incised for a distance of about 2 inches, whereupon a gush of blood ensued. There was no pus or purulent thrombus found.

As the jugular vein had been resected at the previous operation, thus cutting off the portal of entry into the circulation, and as the bulbar end of the sinus seemed to be apparently clean, it was not touched.

The wound was again packed and dressing applied.

The temperature dropped to 100 after the operation. The following day the patient was removed to the open roof pavilion, where he was kept during the remainder of his illness. On this date he felt cold, and the temperature suddenly rose again to 104.8.

Examination of the thorax revealed a small area of dulness in the second left intercostal space; there were some fine crepital râles and a slight cough which persisted for a few days.

The spleen could be felt two fingers below the costal margin.

Blood count revealed: white blood cells, 21,000; polymorphonuclears, 76 per cent.; lymphocytes, 24 per cent.

Blood culture taken this time was again reported positive. The temperature ranged between 99 and 103.5, the pulse between 116 and 120. The respiration was from 26 to 28.

From the report of the last blood culture it was evident that the patient still had a bacteriemia. As the right sinus had been exposed freely, and its contents evacuated as thoroughly as possible, it no longer seemed probable that a septic focus still existed on this side which could be held accountable for this condition.

Feeling that I could reasonably exclude this side, and that perhaps the left sinus was the seat of another septic focus, I reluctantly decided to explore it in spite of the fact that there were absolutely no aural manifestations of any nature which warranted such an operative procedure.

EXPLORATORY MASTOIDECTOMY AND ASPIRATION OF LEFT SIGMOID SINUS

August 6, the mastoid was opened and found absolutely normal. The sinus was exposed for about 2 inches, and showed no evidences of any pathologic changes. With a fine needle, the sinus was aspirated and only pure blood obtained. As the needle was withdrawn a free gush of blood ensued, which was readily controlled by tamponing. The mastoid wound was packed, the skin sutured and dressing applied.

Following this operation, the temperature continued to rise and fall sharply, ranging from 97 to 102 or 102.5 with accompanying chills. The general condition of the patient was good except for a progressingly increasing pallor and a gradual increase in the size of the spleen.

Blood culture taken August 13, that is, a week after this last operation, was reported negative. It was difficult to find a cause for these continued septic symptoms. The right mastoid and wound in the neck looked healthy and were granulating rapidly; the left mastoid wound was also running a normal postoperative course, and the blood culture continued to remain negative.

Having, as I thought, eradicated all septic foci, I failed to understand why there should be a continuance of the high temperature followed by chills, which occurred about the same time each day. In addition to this fluctuation in temperature, there was an enlarged spleen, so that the entire symptom complex gave the impression that we were still dealing with an obscure septic condition.

Nevertheless, quinin bisulphate was begun, August 19, in 10-grain doses three times a day. There was a prompt cessation of the chills and a drop in the temperature. During the following week it rose only three times to 102, but was unaccompanied by any chill. It then fell to normal and did not rise again. Another blood culture, taken August 20, was again reported negative.

Medication of all kind was stopped, and from this time on, the patient made an uneventful recovery. The spleen gradually receded in size. The hearing in both ears was unimpaired. The wounds granulated rapidly, so that by September 9 both mastoids were practically healed and the patient was discharged from the hospital in an excellent physical condition.

COMMENT

In reviewing this case, several interesting features present themselves from a surgical point of view:

1. History of a mild aural discharge from both ears of one week's duration, three weeks prior to admission into the hospital.

2. The complete absence of all active otitic manifestations and clinical symptoms indicative of a sinus thrombosis.

3. The finding of a *positive* blood culture containing hemolytic streptococci which permitted the tentative diagnosis of a sinus thrombosis. Up to the time of the result of this blood culture, the cause of the septic condition was unexplained, and it was only by this means that the presence of a septic focus in the sinus could be reasonably suspected. This was substantiated later by the operative procedure, as we have seen, and again emphasized the importance of taking blood cultures in all cases of an obscure nature running an unexplained septic course. The case, furthermore, corroborates the laboratory findings of Libman,[3] who maintained and conclusively demonstrated that in those cases in which there was a history of an aural affection, and the blood culture was found positive, a thrombosis of the lateral sinus was almost invariably present. His investigations, moreover, showed that sinus thrombosis and meningitis are the only otitic complications giving rise to a bacteriemia.

That these findings were correct in the majority of cases was substantiated by the conditions found at the time of operation. For, in the ten cases in which operation was performed in the otologic service of Mount Sinai Hospital by Gruening,[4] and in another series of cases reported by Oppenheimer,[5] the blood culture was positive in nearly every instance, and a septic thrombus was found at the time of operation.

One must not forget, however, that even in cases in which a thrombus of the sinus is present, the blood culture is not always positive at the first examination.

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[3] Libman: The Value of Bacteriological Investigations in Otology, with Special Reference to Blood Cultures, Arch. Otol., 1908, xxxvii.

[4] Gruening: Six Cases of Thrombosis of the Lateral Sinus Operated Upon in the Ear Ward of Mt. Sinai Hospital in the Course of the Past Winter, Tr. Am. Otol. Soc., 1906. Sinus Thrombosis of Otitic Origin and Its Relation to Streptococchaemia, N. Y. Med. Jour., June 5, 1909.

[5] Oppenheimer: Some Remarks on Sinus Thrombosis, with Particular Reference to the Diagnostic Value of Blood Gultures in Otitic Disease, Ann. Otol., Rhinol. and Laryngol., March, 1911.

According to Libman,[6] this may be due to the fact that the blood culture may have been taken before a bacteriemia has been established, or the bacteria may be in the blood in such small numbers that they are not found in the amount of blood taken for the culture. It may also happen that below the infected clot there may be another obturating uninfected clot which prevents the bacteria entering the circulation, or there may be an infected thrombus completely closing the lumen of the vessel.

For these reasons, it is generally advisable, when an involvement of the sinus is suspected, to make repeated examinations of the blood. The fact that the blood culture is negative at one time and positive at another may, perhaps, also be explained, as Dr. Heiman has already stated, in that the bacteria are disseminated into the blood stream at certain periods, and in particular during the height of the fever.

In this case, the blood culture was still positive after all septic foci were apparently removed from the right sigmoid sinus and bulb.

As it was difficult to find an explanation for this, the third operation, that is on the left or normal ear, was undertaken, with the idea that the sigmoid sinus on that side might also be involved. As we have seen, nothing was found, yet the blood cultures taken subsequently were all negative. It was apparent that the last procedure had nothing whatever to do with this, and it may have been that the continuance of these positive blood findings was due to some small septic focus which was still lodged in either the sigmoid or petrosal sinuses, or in the bulb of the affected side, or that pieces of the thrombus may have entered the circulation, causing metastatic foci without any clinical manifestations. When this obscure focus was overcome by the defensive power of the blood, there were no longer bacteria disseminated into the general system, and the blood cultures taken subsequently were found negative. In spite of the absence of bacteria in the blood, the patient still presented the symptoms of a general infection, which continued for some time.

4. The hard ebonized mastoid bone, apparently free from any destructive changes, and solid throughout. There were no evidences of a persinous inflammatory condition. It did not appear, therefore, that infection of the sinus took place, as is usually the case, by direct extension of the suppurative process in the bone, but through the anastomoses of the veins of the middle ear and those of the meninges, or by way of the emissary veins of the mastoid bone. That infection of the sinus frequently develops in this way without any macroscopic changes is a well-recognized fact. It seemed that in this case, we were dealing with such a mode of infection; this may have been, however, one of those unusual forms of primary thrombosis of the jugular bulb. In such cases, infection takes place directly through a dehiscence in the floor of the tympanic cavity into the jugular bulb, whereupon the septic process extends upward into the sigmoid sinus, and downward, causing a phlebitis of the jugular vein.

5. The finding of pus by aspiration of the sinus. This procedure, which I have employed in a number of cases, has the advantage that one can readily ascertain the contents of the sinus, without incising its wall. Of course, it may happen that one obtains a quantity of blood at the place of puncture and is thus made to believe that the sinus is free from infection, while in reality there is a septic thrombus above or below, which does not entirely obliterate the lumen of the vessel. In this case, however, the thrombus so completely filled the vessel that aspiration immediately revealed the presence of the sepsis. For this purpose I usually employ a large needle, and might add that it is advisable to introduce it into the lumen of the vessel at an acute, rather than at a right angle; for, by observing this precaution, one avoids penetrating the inner wall of the sinus.

6. Excision of the internal jugular vein before curetting the sinus. As soon as the presence of a septic process has been established in the sinus, either by aspiration or by incision, it is advisable to proceed immediately to the resection of the vein. It will be noticed in the case detailed above, that as soon as it was learned that we were dealing with a suppurative condition in the sinus, the parts were not disturbed until the jugular vein and part of the facial vein were first excised. This having been accomplished, attention was then again directed to evacuating the contents of the sinus. I am of the opinion that it is always advantageous to follow this mode of procedure, for, by doing so one first shuts off the portal of entry, whereby septic material and particles of the thrombus which have been loosened by the operation are prevented from entering the general circulation and setting up metastatic foci in other parts of the body. The question frequently arises whether it is better to excise or to ligate the vein. It has been my experience, and it seems to be the consensus of opinion of other observers, that excision is always preferable. This is based on the fact that almost every case of sinus thrombosis is associated with a phlebitis of the jugular vein. If, therefore, the vein is only ligated, it is difficult to tell macroscopically at the time of the operation how far the phlebitis extends, and as often happens, a part of the infected vein remains below the ligature, which serves as a means of reinfection of the blood.

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PARTIAL MYXEDEMA WITH REPORT OF CASE

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If we may judge from the quantity of American literature on the subject, partial myxedema does not occupy the position of importance which it deserves.

The first article on partial myxedema in American literature seems to have been one by Elliott[1] in 1908. In 1909 a report on partial myxedema by Nichols,[2] besides giving a comprehensive account of the condition from a historical and clinical point of view, included the complete report of a case with metabolic study and the literature bearing on the subject up to the time of his publication.

Osborne's[3] clinical and casuistic report on the subject appeared in 1912.

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[6] Libman and Celler: Importance of Blood Culture in the Study of Infections of Otitic Origin, Am. Jour. Med. Sc., December, 1909.

[1] Elliott, A. R.: Incomplete Myxedema (Hypothyroidea), The Journal A. M. A., May 30, 1908, p. 1763.

[2] Nichols, J. B.: Partial Myxedema, The Journal A. M. A., April 10, 1909, p. 1162.

[3] Osborne, O. T.: Some Common Types of Hyposecretion of the Thyroid, The Journal A. M. A., Nov. 2, 1912, p. 1618.

In the past five years cases of partial myxedema adultorum have been reported by the following authors: Thistle,[4] Williams,[5] Regis,[6] Price,[7] Osborne,[3] Saenger,[8] Pierret,[9] Michel,[10] Hertoghe,[11] Henry,[12] Cawadias,[13] Howard,[14] Cobb,[15] Brush,[16] Milne.[17]

This list is probably not complete. In the recent French and German literature a few references are encountered to so-called thyroid instability or dysthyroidism. Such cases are not included in the above list because there is no general agreement on the nature of these cases, in some of which it is contended that the thyroid function is intermittently raised and lowered.

Hertoghe denies the existence of these so-called cases of thyroid instability and accounts for the symptoms of apparent hyperthyroidism, occurring in the treatment of partial myxedema by thyroid extract, on the ground of too rapid thyroidization. The symptoms disappear when the dose is lowered.

The following case of partial myxedema has recently come to my attention. One especially interesting feature about it was that the patient received but little sympathy prior to the discovery of the real condition, because she was supposed by her friends to be more or less continuously under the influence of liquor, an imputation on the woman's character which was dispelled by thyroid extract.

History.—E. V. B., aged 44, widow, was twice married, first at the age of 16. Had three children in the marriage, all of whom are alive and healthy. Second husband died of tuberculosis. Patient had several miscarriages. She began to menstruate when 12 years old. Menstruation during most of her life has been painless and normal.

Family History.—The patient is the youngest of four children. Her mother died at the age of 40, while the patient was an infant, of laryngeal tuberculosis. One sister is living and is in fair health except for a weak throat. One brother died of acute tuberculosis, aged 30. One brother and one sister died in infancy; one aunt on her mother's side still lives.

Previous History.—She had measles when a young child and scarlet fever at 10; had slight malarial infection at 25. Beyond these diseases she was never sick in her life except in childbirth, up to the development of the present illness.

Five years ago (1909) she was taken suddenly ill with pain in the throat and side of neck. The attack which began in the evening was accompanied by difficulty in swallowing. The pain was severe and required morphin to alleviate it. The lower parts of the ears, hands and feet became swollen and there was burning pain in these parts. The physician who saw her in the attack considered it angioneurotic edema. The symptoms varied paroxysmally for about a week and then disappeared.

Three years ago the patient fell down a flight of stairs, striking the right shoulder and head, but the effects soon passed away.

In the spring of 1912 she had an attack of cystitis with painful, frequent urination and hematuria, the whole attack lasting a week.

In the summer of 1913 menstruation ceased for several months, but she had no subjective symptoms. Later it became reestablished and is now irregular.

Present Illness.—The beginning of the symptoms of the present illness were indefinite and the patient is unable to fix them chronologically with exactitude. According to her best recollection the first signs appeared about four years ago, as slight intermittent swelling of the hands and feet. At times she could not comfortably put on her shoes. Then suddenly the swelling would disappear and she would feel as though her shoes were dropping off. She found that a number 7 glove was necessary instead of a 6¼.

Soon afterward, or perhaps simultaneously, she noticed that her upper lip dropped and felt stiff when she talked. Her tongue seemed thickened and felt a little too large for her mouth.

Other symptoms appearing at this epoch were pains in the back of both thighs aggravated by going up or down stairs; a "feverish" taste in the mouth; tendency to feel "frozen" all the time; an emotional state with disposition to cry, and gradual increase in body weight.

Later she noticed that she rarely or never perspired and that her skin was becoming dry and glossy or rough in places, particularly on the hands, legs, abdomen, back, face, neck and outer aspects of arms.

There was a sensation, more or less continuous, of the hands going to sleep. The swelling of her hands appeared to be aggravated at the menstrual periods.

Difficulties in speech and gait became gradually more and more noticeable so that her friends and relatives remarked about it.

Speech was thick and her gait a little uncertain and wobbly. The appearance of these symptoms referable to speech and gait unfortunately gained for her among her acquaintances the undesirable and embarrassing reputation of being more or less continuously tipsy. She was by no means a total abstainer from alcohol, but she frequently went for long periods without consuming a drop and the amount of liquor which she took was totally inadequate to account for the symptoms.

She noticed further, a slight deficiency of memory and slowness of expression, though no mental symptoms ever appeared.

Occasionally she noticed a rather abundant salivation which tended to choke her and at other times there was a nervous sensation of choking in the throat.

Physical Examination (April, 1914).—The patient is a good looking, rather stout woman in the middle forties. Her hair is not gray. Her neck is noticeably thick. Her features appear coarse looking and the lines of expression of the face tend to be obliterated. The weight is 189 pounds. Former weight 170. The lips are thick and the tongue large and stiff. The supraclavicular regions on both sides show soft tumefactions.

The skin over the hands, wrists and legs is glossy and the subcutaneous tissue in these regions is thickened and tense, but does not put on pressure. The face is rather expressionless and the smile appears forced. The nasolabial furrows are visible but shallow. The face seems large and fat, but there is some color in the cheeks. The hair is not gray but seems dry and lacking in nutrition. The patient says her hair is a little thinner than formerly, especially on top. According to her statement her hair was formerly very long and luxuriant.

Her face is decidedly lacking in expression and this she has noticed herself, stating that she finds herself sitting for long periods at the window peering aimlessly without. Her lips are noticeably thick and the mouth appears enlarged.

In speaking, S is pronounced SH somewhat like that of a mildly intoxicated person and there is an apparent difficulty in enunciating words of which the patient herself is aware and on which she remarks.

She is perfectly well oriented in every respect, although there is some defect of memory, particularly for names. She is neither irritable nor suspicious, though she notes

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4. Thistle: Canadian Pract., 1910, xxxv, 357.
5. Williams: Clin. Jour., 1909-10, xxxv, 167.
6. Regis: Gaz. hebd. d. sc. méd. de Bordeaux, 1910, xxxi, 124.
7. Price: Am. Med., 1911, New Series, vi, 407.
8. Saenger: Deutsch. Ztschr. f. Nervenh., 1912, xliii, 392; Med. Klin., 1911, vii, 1885.
9. Pierret: L'Echo méd., Lille, July, 1912, p. 364.
10. Michel: Thèse de Paris, 1912.
11. Hertoghe: Ann. et Bull. Soc. de méd. d'Anvers, 1912, lxxiv, 47.
12. Henry: Lancet, London, 1914, i, 1722.
13. Cawadias: Bull. et mém. Soc. méd. d. hôp. de Paris, 1914, Series 3, xxx, 207.
14. Howard: Long Island Med. Jour., 1914, viii, 269.
15. Cobb: Brit. Med. Jour., 1914, i, 1349.
16. Brush, E. N., and Cornell, W. B.: A Case of Myxedema, with Recovery, and Seven Years' After-Care Notes, Arch. Int. Med., May, 1913, p. 530.
17. Milne: Indian Med. Gaz., 1914, xlix, 221.

age of 12 he had meningitis. When he recovered he was absolutely deaf, and this has persisted. During convalescence he complained of diplopia and uncertainty of gait, but these disturbances were transitory.

The onset of the present illness occurred in November, 1911, when he began to suffer from severe continuous pain in the nape of the neck radiating into the arms. After a week's rest in bed this ameliorated greatly. A few days later, becoming intoxicated, he fell asleep with one hand resting on a hot stove, and thus badly burned it. He felt no pain in the hand either at that time or subsequently. This was his first experience of this kind, though he has since then suffered from many injuries of similar character. The neuralgic pains in the neck and arms then recurred, and persisted without intermission for three or four months. On their cessation, weakness of the left arm developed, which slowly progressed so that he became unable to move this member without the aid of the right hand.

In June, 1912, seven months after the appearance of the initial symptoms, he developed unsteadiness and swaying of the gait, especially when fatigued. This has become continuously more pronounced.

In November, 1912, one year after the onset, occurred a temporary deflection of the tongue to the left. This was associated with dysphagia and dysarthria, and persisted for between two and three weeks.

In March, 1913, he felt what he describes as an electric shock running through the right arm. Since then he has complained of stiffness in this extremity and inability to recognize what objects he grasps when he puts his hand in his pocket. During this period of the acute development of the disease the patient lost 35 pounds in weight, but this has been largely regained.

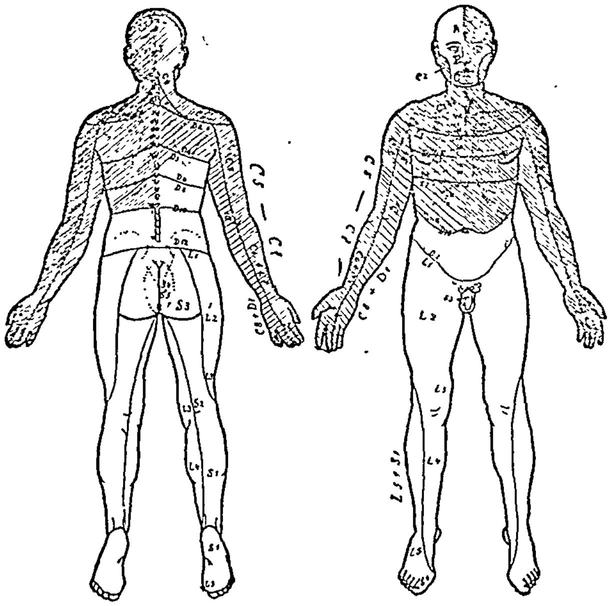

Fig. 1.—Areas of analgesia and thermo-anesthesia, showing preponderance on the left and radicular distribution: *A*, distribution of ophthalmic division of the trigeminus; *B*, of superior maxillary division; *C*, of inferior maxillary division.

Examination.—April, 1913: The patient is well developed and well nourished. A moderate muscular atrophy exists, localized in the left biceps and triceps. There is a marked weakness of these muscles, and to a less degree all the other muscles of this extremity are similarly affected. The dynamometer reading on the right is 75, on the left 35. There is no reaction of degeneration. No other muscular abnormalities are noted.

The left half of the face is smaller than the right, but there are no signs of sympathetic involvement. The hands are cold, moist, but not edematous, and present a number of deep erosions due to burns. The nails on several fingers are split into two layers. There exists a moderately depressed sternum (*thorax en bateau* of Marie) which developed during 1912.

A pronounced Romberg is present, though the patient falls in no particular direction. He stands with the pelvis projected forward and the feet widely separated, a typically cerebellar station. The reeling and staggering gait is also distinctly cerebellar in character. He constantly deviates to the left. There is no tremor or incoordination nor are there present asynergy, adiadokocinesis or any of the other signs of the cerebellar syndrome of Babinski.

The right knee jerk has been exaggerated throughout. The left at first absent, reappeared, and ultimately approximated the right in activity. The ankle jerks are normal. A double Babinski exists, but there is neither patellar nor ankle clonus. In the arms the tendon reflexes are all much diminished. The left abdominal and both epigastric reflexes are absent. Other cutaneous reflexes are normal.

The sensory changes consist of a pronounced syringomyelic dissociation, the distribution of which is represented in Figure 1. This analgesia and thermo-anesthesia extends upward from the area of skin supplied by the tenth dorsal segment. Above this level the sensory loss increases, presenting its maximum intensity in the cutaneous area innervated by the upper four or five cervical segments. On reference to Figure 1, the radicular distribution of these disturbances is very evident. There exists a very slight diminution of tactile sensibility over the left half of the body. The postural sense is unimpaired. The sensory loss throughout is more pronounced to the left of the median line.

The analgesia in the area of distribution of the left trigeminus is especially interesting on account of the diverse degree of involvement of the three divisions of this nerve. The ophthalmic division is most involved, the superior maxillary less so, while the inferior maxillary presents the least degree of sensory loss. The patient voluntarily remarks that when the painful or thermic stimulus descends the face, he feels nothing over his forehead, sensation is better on his cheek and best of all at the level of his chin. The motor function of the nerve is unimpaired.

There exists a very evident astereognosis affecting the right hand. On this side the patient fails to identify by palpation such common objects as a watch, a key, a pair of scissors, etc., while with the left hand these objects are rapidly and accurately identified. There is no motor difficulty to account for this deficit. Muscular force is intact on the right, and all the finer manual movements requiring the highest degree of coordination are performed with more facility on this side.

With the exception of the auditory, the special senses are unaffected. The cochlear and vestibular divisions of this nerve no longer function. The eye examination is negative except for a pronounced nystagmus, coarse in type, occurring on lateral deviation of the eyes and most marked when looking to the left. The corneal reflexes respond normally.

The speech is drawling, nasal, and with a noticeable absence of inflections. The tongue is protruded in the middle line, and there is no atrophy or tremor. The larynx is unaffected. The sphincters are intact and have always been so.

All laboratory reports, including those on the cerebrospinal fluid, have been negative.

From a consideration of what was stated in the introductory portion of this article, this case may be diagnosed as one of syringobulbia. The bulbar and cerebellar symptoms developing seven months after the onset of the disease, and their predominance over the spinal symptoms, justify us in making this diagnosis. The dysarthria, dysphagia, fifth nerve disturbances, nystagmus, impaired station and gait are all the expression of a lesion affecting the bulb and the adjoining cerebellar tracts. The intimate anatomic relations existing between the fifth nerve and the inferior cerebellar peduncle, both in this part of their course bulbar structures, are seen on reference to Figure 2.

a tendency to be more than normally sensitive and is disposed to cry. There are no delusions nor hallucinations. The temperature is 98.8, pulse 70, a trifle weak. Examination of heart and lungs negative. Urinalysis negative. Color normal, reaction acid, specific gravity 1.024. No albumin or sugar. Slight indicanuria. Feces examination negative. Stool semisolid, reddish brown, well digested and contains no mucus.

Tentative diagnosis, partial myxedema. The patient was put on thyroid extract, gr. ii, t. i. d.

For a few days there was rather severe muscular pain in different parts of the body, but immediately and almost magically an entire transformation in her feelings and appearance was worked.

She became elastic and steady in her gait, began to lose flesh, and with it her more than matronly figure. The pains being severe, thyroid was diminished to one tablet a day.

Very soon after, she began to have hot flushes as though from normal menopause. The skin became moist. But the greatest relief to the patient came in a change in her speech, which had constituted so embarrassing a difficulty before. She could express herself glibly and was delighted at the restoration of mobility of tongue and face.

All these improvements occurred so suddenly and as it were, dramatically, that they were promptly noted by all her relatives and friends.

It was found that one thyroid tablet per day was sufficient to maintain the patient *in statu quo* and prevent the reappearance of any myxedema symptoms, a condition which has remained substantially unchanged up to the present.

The above case would apparently justify us in adding chronic alcoholism to the list of diseases or morbid processes with which partial myxedema may be confused. With Bright's disease, on account of the swelling of the face, it may be and has been mistaken.

I do not propose to enter, in this brief report, into the symptomatology of partial myxedema, since this aspect of the question has been quite completely covered by Nichols, Osborne and others. I believe it worth while, however, to enumerate the chief clinical types of thyroid insufficiency which appear to be recognized at present. They come under six categories (French).[18]

1. Certain infants, who without being true cretins, present symptoms of amentia or idiocy.
2. Certain backward children, between 2 and 5 years of age, showing various symptoms, of which the two most familiar are slowness in learning to talk and delay in learning to walk.
3. Growing boys and girls, suffering either from general mental backwardness or persistent nocturnal enuresis.
4. Certain stout, sterile women of the child-bearing age.
5. Certain females at or about the menopause who have rapidly become too stout.
6. Sufferers from certain nerve affections, which closely resemble and are frequently called neurasthenia and tic douloureux.

Besides the generally accepted pathologic state to which the name partial myxedema or hypothyroidism has been given, there is a noticeable tendency at present to incriminate thyroid insufficiency in the genesis of other morbid processes. For example, hypothyroidism has been seriously offered as the real cause of chronic appendicitis by Hertoghe,[10, 19] who is presumably entitled to special consideration in his views, since he was one of those who originally created the clinical entity of partial myxedema or hypothyroidism. Juvenile scoliosis has also been recently included among the pathologic processes which owe their origin to defective thyroid secretion (Dubreuil-Chambardel[20]). Perhaps the day is coming, which Hertoghe predicts, when "we will interrogate the thyroid equation (hypo or hyper) in all our patients with the same fidelity that we inquire to-day into their previous history as regards tuberculosis, syphilis and alcoholism."

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CAVITY FORMATION WITHIN THE MEDULLA OBLONGATA: SYRINGOBULBIA

WITH REPORT OF A CASE

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NEW YORK

Syringobulbia, cavity or fissure formation in the medulla oblongata, the analogue of syringomyelia, cavity or fissure formation in the spinal cord, is comparatively a rare disease. The symptomatology, however, is so striking that in the majority of instances the diagnosis may be made without difficulty by those conversant with the clinical aspect of the disease.

Associated with the trophic disturbances and dissociation of the sensibility so characteristic of syringomyelia (analgesia and thermo-anesthesia present with tactile sensibility unimpaired) exists a group of symptoms due to involvement of the bulb and the adjoining structures. When these two orders of symptoms are found in conjunction, the diagnosis of syringobulbia may be made with certainty. In the opinion of most authors, the bulbar disturbances of syringomyelia are singularly benign, and the prognosis for a long duration of life is not necessarily unfavorable. This is in marked contradistinction to the grave outlook which the development of these symptoms entails in other diseases of the central nervous system.

The medulla oblongata, or the bulb of the cerebral spinal axis, as it is familiarly called, may be involved by cavity formation or syringosis in one of three ways: it may be the sole seat of the cavity formation; it may be the place where cavity formation begins which subsequently extends into the spinal cord; and finally it may be implicated secondarily, as it were, by a lesion which extends upward from the spinal cord.

Up to the present time I can find no case recorded in which the cavity formation has been limited to the bulb alone. Of the cases so far reported, the number which legitimately may be accorded a place in the second variety is very restricted. In Schlesinger's monograph only two are put in this category.[1] Other writers bear similar testimony to the rarity of this form of syringobulbia. The majority of cases have conformed clinically to the third variety—that variety in which the spinal symptoms after a fairly short time have been followed by the development of bulbar symptoms. The case herewith reported belongs in this category.

History.—W. H., man, aged 21, entered the Neurological Institute, April, 1913. The family history is negative. At the age of 12 he had meningitis. When he recovered he was absolutely deaf, and this has persisted. During convalescence he complained of diplopia and uncertainty of gait, but these disturbances were transitory.

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[18] French: Clin. Jour., London, 1911-12, xxxix, 321.

[19] Hertoghe: Bull. Acad. Roy. de méd. de Belg., 1914, xxviii, 64; ibid., 1899, xiii, 231.

[20] Dubreuil-Chambardel: Gaz. méd. du Centre, Tours, 1914, xix, 97.

[1] Schlesinger: Die Syringomyelie, Ed. 2, Leipzig, 1902.

The onset of the present illness occurred in November, 1911, when he began to suffer from severe continuous pain in the nape of the neck radiating into the arms. After a week's rest in bed this ameliorated greatly. A few days later, becoming intoxicated, he fell asleep with one hand resting on a hot stove, and thus badly burned it. He felt no pain in the hand either at that time or subsequently. This was his first experience of this kind, though he has since then suffered from many injuries of similar character. The neuralgic pains in the neck and arms then recurred, and persisted without intermission for three or four months. On their cessation, weakness of the left arm developed, which slowly progressed so that he became unable to move this member without the aid of the right hand.

In June, 1912, seven months after the appearance of the initial symptoms, he developed unsteadiness and swaying of the gait, especially when fatigued. This has become continuously more pronounced.

In November, 1912, one year after the onset, occurred a temporary deflection of the tongue to the left. This was associated with dysphagia and dysarthria, and persisted for between two and three weeks.

In March, 1913, he felt what he describes as an electric shock running through the right arm. Since then he has complained of stiffness in this extremity and inability to recognize what objects he grasps when he puts his hand in his pocket. During this period of the acute development of the disease the patient lost 35 pounds in weight, but this has been largely regained.

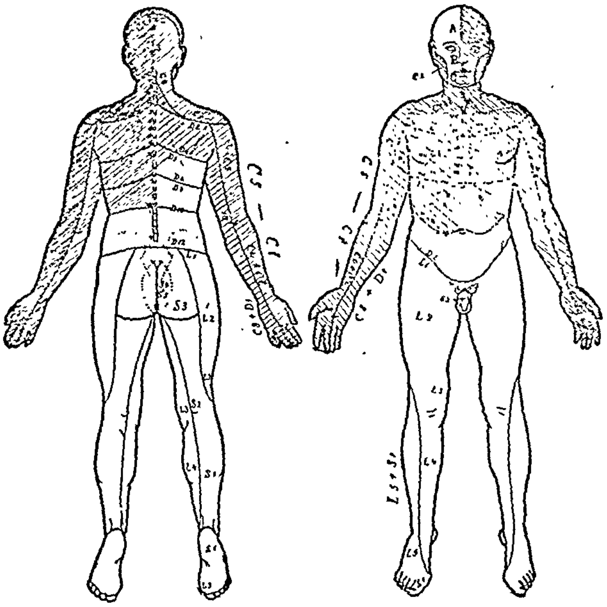

Fig. 1.—Areas of analgesia and thermo-anesthesia, showing preponderance on the left and radicular distribution: *A*, distribution of ophthalmic division of the trigeminus; *B*, of superior maxillary division; *C*, of inferior maxillary division.

Examination.—April, 1913: The patient is well developed and well nourished. A moderate muscular atrophy exists, localized in the left biceps and triceps. There is a marked weakness of these muscles, and to a less degree all the other muscles of this extremity are similarly affected. The dynamometer reading on the right is 75, on the left 35. There is no reaction of degeneration. No other muscular abnormalities are noted.

The left half of the face is smaller than the right, but there are no signs of sympathetic involvement. The hands are cold, moist, but not edematous, and present a number of deep erosions due to burns. The nails on several fingers are split into two layers. There exists a moderately depressed sternum (*thorax en bateau* of Marie) which developed during 1912.

A pronounced Romberg is present, though the patient falls in no particular direction. He stands with the pelvis projected forward and the feet widely separated, a typically cerebellar station. The reeling and staggering gait is also distinctly cerebellar in character. He constantly deviates to the left. There is no tremor or incoordination nor are there present asynergy, adiadokocinesis or any of the other signs of the cerebellar syndrome of Babinski.

The right knee jerk has been exaggerated throughout. The left at first absent, reappeared, and ultimately approximated the right in activity. The ankle jerks are normal. A double Babinski exists, but there is neither patellar nor ankle clonus. In the arms the tendon reflexes are all much diminished. The left abdominal and both epigastric reflexes are absent. Other cutaneous reflexes are normal.

The sensory changes consist of a pronounced syringomyelic dissociation, the distribution of which is represented in Figure 1. This analgesia and thermo-anesthesia extends upward from the area of skin supplied by the tenth dorsal segment. Above this level the sensory loss increases, presenting its maximum intensity in the cutaneous area innervated by the upper four or five cervical segments. On reference to Figure 1, the radicular distribution of these disturbances is very evident. There exists a very slight diminution of tactile sensibility over the left half of the body. The postural sense is unimpaired. The sensory loss throughout is more pronounced to the left of the median line.

The analgesia in the area of distribution of the left trigeminus is especially interesting on account of the diverse degree of involvement of the three divisions of this nerve. The ophthalmic division is most involved, the superior maxillary less so, while the inferior maxillary presents the least degree of sensory loss. The patient voluntarily remarks that when the painful or thermic stimulus descends the face, he feels nothing over his forehead, sensation is better on his cheek and best of all at the level of his chin. The motor function of the nerve is unimpaired.

There exists a very evident astereognosis affecting the right hand. On this side the patient fails to identify by palpation such common objects as a watch, a key, a pair of scissors, etc., while with the left hand these objects are rapidly and accurately identified. There is no motor difficulty to account for this deficit. Muscular force is intact on the right, and all the finer manual movements requiring the highest degree of coordination are performed with more facility on this side.

With the exception of the auditory, the special senses are unaffected. The cochlear and vestibular divisions of this nerve no longer function. The eye examination is negative except for a pronounced nystagmus, coarse in type, occurring on lateral deviation of the eyes and most marked when looking to the left. The corneal reflexes respond normally.

The speech is drawling, nasal, and with a noticeable absence of inflections. The tongue is protruded in the middle line, and there is no atrophy or tremor. The larynx is unaffected. The sphincters are intact and have always been so.

All laboratory reports, including those on the cerebrospinal fluid, have been negative.

From a consideration of what was stated in the introductory portion of this article, this case may be diagnosed as one of syringobulbia. The bulbar and cerebellar symptoms developing seven months after the onset of the disease, and their predominance over the spinal symptoms, justify us in making this diagnosis. The dysarthria, dysphagia, fifth nerve disturbances, nystagmus, impaired station and gait are all the expression of a lesion affecting the bulb and the adjoining cerebellar tracts. The intimate anatomic relations existing between the fifth nerve and the inferior cerebellar peduncle, both in this part of their course bulbar structures, are seen on reference to Figure 2.

The incoming sensory fibers of the fifth nerve on reaching the pons bifurcate. Short ascending branches terminate around the principal sensory nucleus in the pons, while the longer descending branches can be traced through the bulb as far as the third cervical segment of the cord. These fibers constitute the descending root of the fifth nerve (Fig. 2, V. D. R.), and end at various levels in a mass of gray matter placed just to their inner side. This mass of gray matter, the descending nucleus of the nerve (Fig. 2, V. D. N.), also extends down into the cord. Immediately external to these structures and in direct contact with them are the lowermost fibers of the inferior cerebellar peduncle. These are derived from the cord and bulb, and end in the cortex of the central lobe of the cerebellum. Owing to this anatomic proximity, we can easily understand how a lesion extending outward laterally from the vicinity of the central canal may produce some form of sensory disturbance in the cutaneous distribution of the fifth nerve and at the same time a more or less definite cerebellar syndrome.

The most important and interesting of the bulbar symptoms is undoubtedly the analgesia and thermo-anesthesia of the left trigeminus. Lamacq, Schlesinger, and Ivanoff, all found this to be a common and early symptom in syringobulbia, as one would indeed expect to be the case, owing to the projection downward into the spinal cord of the descending root and nucleus of this nerve. There exists, however, a considerable difference of opinion regarding the distribution of the sensory disturbances in lesions of these structures. Kutner and Kramer[2] and Schlesinger[3] consider that a lesion of the distal portion of this column results in anesthesia of the ophthalmic division, a lesion of the intermediate portion in anesthesia of the inferior maxillary division and a lesion of the proximal portion in anesthesia of the superior maxillary division. Wallenberg and May oppose this. They concluded from a clinical study of their cases that the distal portion of the root contained the fibers derived from the ophthalmic division, the intermediate portion those derived from the superior maxillary division, and the proximal portion those derived from the inferior maxillary division. These conclusions they subsequently confirmed anatomically. In this case, the distribution of the sensory disturbance supports the view held by Wallenberg and May, and is opposed to that advanced by Schlesinger and Kutner and Kramer.[4]

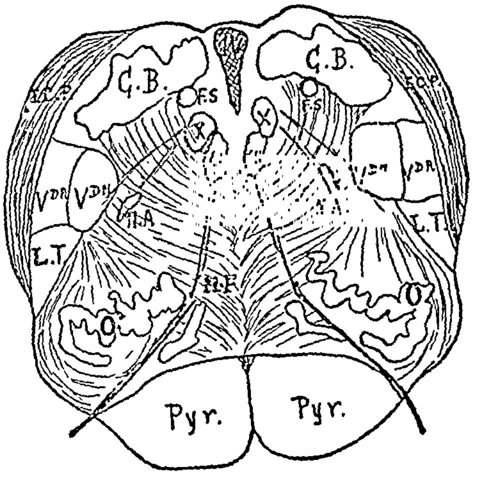

Fig. 2.—Section across the medulla oblongata at about the junction of the middle and lower thirds of the olive: *I C P*, inferior cerebellar peduncle fibers passing backward; *V D R, V D N*, descending root and nucleus of the fifth nerve; *L T*, lateral tract of the bulb containing the spinal fibers which are passing into the inferior cerebellar peduncle to form the spinal contingent of that structure; *Pyr.*, pyramids; *M F*, median fillet; *O*, olive; *G B*, nuclei of the columns of Goll and Burdach; *X, XII*, nuclei of the tenth and twelfth nerves; *N A*, nucleus ambiguus; *F S*, solitary fasicle; *IV*, fourth ventricle.

The integrity of the motor division of the nerve is owing to the relatively high position it occupies in the pons. It thus escapes involvement by the cavity formation which has not extended so far upward.

The cerebellar symptoms, while not numerous, are clearly defined and characteristic, and their existence can be satisfactorily explained by assuming a lesion or at least disordered function of one of the afferent cerebellar tracts, namely, the inferior cerebellar peduncle, the anatomic relations of which have been previously considered.

Within the cord itself the cavity is not extending forward. Only in the fifth and sixth cervical segments is this apparently occurring where the anterior horn cells innervating the left biceps and triceps are probably affected. This variety of atrophy as an onset type is uncommon. The great majority of cases present in the early stage of the disease the classical Aran-Duchenne atrophy affecting the intrinsic muscles of the hand. That the lesion is extending in a lateral direction may be inferred from the evidence of a double pyramidal tract involvement (double Babinski). Whether we consider the cord or the bulb, the preponderance of all symptoms to the left would indicate that the pathologic process is more active in this direction.

An interesting feature is the loss of the stereognostic sense in the right hand. This has been rarely reported in syringomyelia except associated with some form of motor disability, usually an Aran-Duchenne atrophy. In these instances it has not always been possible to say how much of the failure to identify by palpation was due to the atrophy and resultant inability to manipulate objects properly, and how much was due to a real loss of the stereognostic sense. But here it is to be noted that the astereognostic hand is that which presents the less degree of sensory disturbance and no motor disability. The presence of a tactile agnosic element involving the cerebral association fibers is thus strongly suggested, as it is difficult otherwise to account for this loss of function. Unfortunately, at the time of the determination of the astereognosis a complete examination of all the modes of sensibility was not undertaken. One month later a complete sensory examination revealed nothing abnormal in the affected hand.

This case is considered worthy of publication owing to the early onset of symptoms pointing to involvement of the oblongata, the distribution of the trigeminal sensory dissociation, the onset with localized and unilateral brachial type of atrophy, and the presence of a definite even if temporary astereognostic or asymbolic condition.

60 West Fifty-Eighth Street.

The Sole Specific.—There is no sovereign remedy for tuberculosis outside of good food, fresh air, rest and healthy living. House disinfection is the key to the prevention of tuberculosis.—L. Flick.

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[2] Kutner, R., and Kramer, F.: Sensibilitätsstörungen bei acuten und chronischen Bulbarerkrankungen, Arch. f. Psychiat., 1907, xlii, 1058.

[3] Schlesinger: Die Syringomyelie, Ed. 2, Leipzig, 1902, p. 165, and diagram, p. 166.

[4] I have since observed a case of fracture of the third cervical vertebra and two other cases of syringomyelia, all with trigeminal sensory disturbances. In these cases the distribution of the analgesia is identical with that found here.

A CASE OF TYPHUS FEVER

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MINNEAPOLIS

The identity of so-called Brill's disease and typhus fever has been established by Anderson and Goldberger, together with the mode of transmission by the body louse.

Sporadic cases have been reported in New York and Brooklyn (Brill, Louria, Nicoll, Ziegel, Coleman); Boston (Roger, Lee); Chicago (Strouse); Atlanta (Paullin); Milwaukee (Patck); Indiana (Charles); Virginia (Goldberger); Washington, D. C. (Newman).

Thus far no case of typhus fever has been reported from Minnesota or any of its cities. Following the suggestion of John F. Anderson that the observed cases should be reported from all parts of the United States, the following case in Minneapolis, Minn., is recorded.

Mr. G., a Jewish peddler, aged 50, married, no children, was seen on May 3, 1914.

Patient had been a healthy man all his life up to about two weeks prior to the time when he was taken sick. He then began to feel out of sorts, lost his appetite and had headache. About one week later he began to have fever, felt prostrated and weak, complained of more headache, some nausea, loss of appetite, and stopped his work.

When first seen by Dr. Groll the patient had a temperature of 102 F., was weak and prostrated, but without other distinctive symptoms. Two days later he was seen again with a temperature of 103, was dull and apathetic with a badly coated tongue, rapid pulse and a fine submerged, dusky red, maculopapular rash, more marked over the skin of chest and abdomen and shoulders, but not apparent on the face.

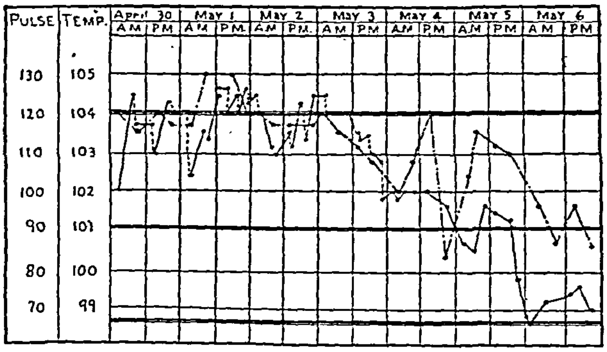

Chart in case of Mr. G., typhus fever, showing temperature record (solid line) and pulse (broken line).

Patient had had no diarrhea, no cough, no vomiting, no nose bleed. No rose spots could be seen. The spleen was not palpable. The Widal reaction was negative. During the succeeding few days the fever remained high (103 to 104). The mottling of the skin became more marked and more general over the body.

I first saw the patient in consultation on the seventh day following the onset of the fever. He was complaining of headache; had had no vomiting, no delirium; was a well-nourished, stockily built man, was dull and apathetic, but answered questions intelligently; had a heavily coated dry tongue. The pupils were equal and reacted to light. Knee jerks were active. There were no palpable lymph glands; no edema; no tenderness over bones or elsewhere; no tympanites. The spleen was not palpable, liver not enlarged, lungs and heart negative. No Kernig sign. Plantar reflex normal. The clinical finding of importance was the peculiar submerged, dusky red rash, looking not unlike a luetic roseola, and yet in certain areas, especially over the chest and abdomen, fine raised rose colored spots, not unlike those of typhoid fever, could be seen. These spots, however, were more bluish in color than rose spots and they disappeared only on prolonged, firm pressure. This mottling, dusky looking rash covered the skin of the chest, abdomen and shoulders. No rash could be seen over the lower extremities or the face. No petechiae were found. The high fever and the mottling rash suggested either an atypical typhoid, septicemia, measles, lues or meningitis. Typhus fever was not thought of at the first consultation.

The patient was referred to Asbury Methodist Hospital for further study.

During the next two weeks the case was seen a number of times with Dr. Groll. During the severe part of the illness the patient lay in a dull, stuporous state with at times a muttering delirium. His cheeks were flushed, conjunctiva injected, face dusky, tongue dry, sordes on the teeth.

The fever was a sustained high temperature like that of pneumonia (see chart). Pulse was fast (116 to 130). Repeated lung examinations were negative. The rash came out gradually over the arms and could even be seen on the wrists and hands. The lower extremities were free except on the upper part of both thighs.

Incontinence of feces and urine developed and for a number of days the patient lay in a low, unconscious, typhoidal state. The Widal reaction made on three occasions was negative, the Wassermann test negative. Leukocyte count on the eighth day was 5,300, on the fourteenth day 6,630. Blood culture on the tenth day was negative. Urine contained albumin and casts. Differential leukocyte count on the ninth day—polymorphonuclears 65.5 per cent., small mononuclears 26 per cent., large mononuclears 6 per cent., eosinophils 0, transitionals 2.5 per cent.

At no time was the spleen palpable, nor was tympanites marked. There was no diarrhea.

As the disease progressed the rash became darker and more bluish in color, almost purpuric, and yet there were no distinct areas of purpura except some very fine pin-point-sized purpuric spots scattered throughout the areas over the chest and abdomen.

Contrary to our expectations the patient gradually recovered from his serious condition, the rash faded, the incontinence of urine and feces ceased, fever dropped, mind cleared and convalescence was established on about the eighteenth day.

At the outset of the disease the patient was given calomel in divided doses, followed by magnesium sulphate. From the fourth to the tenth day he received salol, 5 grains every four hours; during catheterization hexamethylenamin, 7½ grains t. i. d.; during convalescence strychnin sulphate, 1/40 grain t. i. d.

The repeated negative Widals, the negative blood culture and absence of distinctive symptoms ruled out typhoid fever. Measles was excluded by the prolonged course and severe symptoms, lues by the negative Wassermann, acute course and absence of an initial lesion. No distinctive symptoms of meningitis appeared and the leukocyte count was low. The favorable course, negative blood culture and low leukocyte count excluded septicemia. The toxic purpuras were out of the question.

The diagnosis of typhus fever was therefore made. The course, sustained temperature, characteristic rash, low leukocyte count and dirty living conditions of the patient justified this conclusion.

Crime and Disease.—I would not want to say to-day absolutely and outright that crime and disease are synonymous. I should have no hesitancy in saying that every criminal is abnormal in some part of his physical being; that all criminality has a physiologic basis.—Vaughan, *Wis. Med. Jour.*

Special Article

PRACTICAL PHARMACOLOGY *

(*Continued from page 907*)

XI

B. DEPRESSANTS: 6. HYDROCARBON NARCOTICS—(Continued)

Hypnotics

Small doses of the hypnotics depress the psychic and some other centers in the great brain, while exerting little influence on other parts of the central nervous system. Larger doses should be avoided in therapeutics because they depress the vasomotor and the respiratory centers.

We have no theory based on observed facts which is capable of explaining the chemical causes of sleep, but it seems probable that sleep is induced by certain products of metabolism which accumulate during waking. If we could determine just what these substances are and prepare them in a form suitable for therapeutic use we should probably have an ideal hypnotic. The claim is often made that the ideal hypnotic has been found, but such claims invariably prove unfounded, and we find that the new preparation has undesirable, and even dangerous, side actions.

Every hypnotic tends to require increasing doses, while the side actions do not diminish correspondingly; hence it is better to use different hypnotics when it is necessary to continue their use for some time.

Alcohol and opium were formerly our principal hypnotics, but these have been superseded largely by others which may be divided into three main groups as follows: (1) those which depend on halogens for their action; (2) those depending on alkyl groups, and (3) those in which an aldehyd group or ketone group determines the action.

Lauder Brunton has stated that the requirements for sleep are: (1) hindrance of blood-flow through the brain (this is not necessarily attended with a diminution of the amount of blood in the cerebral vessels at any given moment); (2) depression of the functional activity of the brain (it is a matter of common experience that mental activity prevents sleep).

A hypnotic must have a selective action on the brain, and one of the objects sought by investigators is the discovery of compounds having this selective action in the highest degree, with a minimum of action on the medullary centers and the heart. This has led to the introduction of many substances of greater or less value, which have been introduced in most cases with enthusiastic praise of their advantages and a disposition to minimize their disadvantages, and even to deny that they have any side actions worthy of mention. This method of exploitation has frequently resulted in the abuse of these newer hypnotics, and many deaths have resulted from overdoses of them, for it must be remembered that there is no such thing as an absolutely safe hypnotic, and that overdoses of any one of them are about as dangerous as an overdose of hydrated chloral.

HALOGEN DERIVATIVES

Aldehyd, or acetaldehyd, $CH_3.CHO$, has some slight hypnotic activity, but it is of no therapeutic value, because the hypnotic stage is preceded by excitement. By the introduction of three atoms of chlorin, forming chloral, CCl_3CHO, however, we obtain a useful hypnotic. Chloral is converted into hydrated chloral by the addition of a molecule of water, and this is the form in which chloral is commonly used.

Chloral was prepared by Liebig in 1831, and tested on animals in 1860, but it was not used therapeutically until 1869, when it was introduced into the materia medica by Liebreich. He assumed that, because it is decomposed in the presence of alkalies with the formation of chloroform, this reaction occurred in the blood and that the slowly formed chloroform induced sleep.

Mering showed that hydrated chloral is excreted in the urine as tri-chlor-ethyl alcohol in combination with glycuronic acid. Curiously, this long-disproved theory of Liebreich's has been advanced recently by E. Fougera & Co. to explain the pretended action of their product, Betul-ol.

The blood is practically neutral in reaction, and even though hydrated chloral were decomposed with the formation of chloroform, the amount so formed from a therapeutic dose of chloral would be wholly inadequate to induce sleep during more than a very few minutes, if indeed it would cause sleep at all.

The actions of hydrated chloral resemble those of chloroform qualitatively, at least, quite closely, the chief differences in their behavior being due to differences in their rates of elimination from the body. It will be unnecessary to detail the actions of hydrated chloral on the higher parts of the brain, since this type of action was discussed when alcohol was under consideration.

In the absence of pain sleep may be induced by hydrated chloral with doses which exert but little action on the respiratory and vasomotor centers. From this sleep one may be aroused easily by noise, or by any stimulus which would arouse one from ordinary sleep. With larger doses the sleep is deeper, and the vasomotor and respiratory centers suffer depression, constituting, with the direct action on the heart, the principal source of danger with overdoses.

The respiration is diminished during sleep from any cause, and with therapeutic doses of hydrated chloral there is probably no greater depression of respiration than occurs in ordinary sleep; that is, there is probably no direct action on the center by the drug. Toxic doses, however, do depress the center directly, causing a slower rate with some increase in the depth of the individual respirations. Cushny has shown that the normal response of the respiratory center to carbon dioxid is not altered by therapeutic doses of hydrated chloral, while toxic doses prevent the increase in the rate by carbon dioxid but do not affect its action on the depth; hence the deeper respirations just mentioned in chloral poisoning.

The action of hydrated chloral on the heart and the vasomotor centers precludes its use as a general anesthetic in man, though it is frequently used for this purpose in laboratory experiments. While the blood-pressure falls greatly with toxic doses, it still responds to stimulation by carbon dioxid, and the asphyxial rise of blood-pressure usually occurs after the cessation of respiration. The action on the heart is similar to that of chloroform.

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* This is the eleventh of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

Hydrated chloral is irritant to the mucous membranes of the mouth and gastro-intestinal tract, and when it is administered in too great concentration it causes nausea and vomiting, or if it be administered by the rectum it is expelled. This indicates that the solution of the drug should be well diluted with water or some bland fluid before being administered.

It should be remembered that therapeutic doses of hydrated chloral are not analgesic, and that when pain is the cause of sleeplessness a suitable anodyne, such as morphin or antipyrin, is to be preferred.

Hydrated chloral is absorbed rapidly from the gastro-intestinal tract, and it may be given by the mouth or rectum, the dose being the same by either mode of administration. It is excreted in the urine in combination with glycuronic acid. The rate of excretion probably varies widely with the dose and the effect which it has on the blood-pressure. A cat may remain under the influence of a just non-fatal dose for as much as three or four days, while another will recover from a dose equally as large in one day. It is probable that the more prolonged action is attended with a profound fall of blood-pressure which interferes with renal excretion, while the shorter duration occurs where the circulatory disturbance is insufficient to prevent the prompt elimination of the drug.

The repeated use of hydrated chloral tends to induce the habit, and where hypnotics are to be used for some time recourse should be had to other members of the group, such as veronal or trional.

Acute poisoning with hydrated chloral is not so common when the drug is used alone, because physicians very commonly appreciate its limitations and use it with due caution, but it is a constituent of the proprietary Bromidia, which is commonly used with much less caution, and acute symptoms in such cases are not rare.

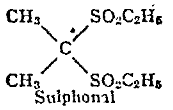
Absorption is so rapid that it is probable that little or no hydrated chloral remains in the gastro-intestinal tract when toxic symptoms are observed after the oral administration, but the stomach may be emptied when the patient is seen shortly after a poisonous dose has been taken. If the poison has entered the circulation, efforts should be directed toward its elimination, and proper symptomatic treatment should be instituted.

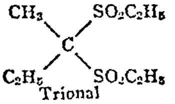
The respiratory and vasomotor centers, especially the former, are usually the seat of danger, and artificial respiration should be instituted when there is any sign of approaching paralysis. Schmiedeberg has recommended the use of coriamyrtin as a physiologic antidote to hydrated chloral, but it is a violent poison and probably has no advantage over the much safer caffein, which stimulates both the respiratory and vasomotor centers. Active diuresis should be induced by the administration of hot drinks and in emergency, intravenous injection of warmed saline, as previously suggested in the treatment of strychnin poisoning, the object in both cases being exactly the same.

It is not sufficient to insure the safety of the respiratory center, for the more prolonged the elimination of the poison the greater is the opportunity for it to exert its toxic action on the heart. Hence the elimination should be hastened as much as possible.

SULPHONAL AND TRIONAL

These two substances are official as sulphonemethanum and sulphon-ethyl-methanum; chemically they resemble each other closely, differing only in that one of the methyl groups of sulphonal is replaced by an ethyl in trional. This is seen at a glance from the structural formulas:


Sulphonal


Trional

Chemical compounds in general which have anesthetic or hypnotic actions dependent on the presence of ethyl groups are usually less depressant to the heart and the medullary centers than are those which depend on halogens for their action. Ether or ethyloxid has these disadvantages to a much less extent than chloroform, or tri-chlor-methane, and sulphonal and trional possess them to a less extent than hydrated chloral, or tri-chlor-aldehyd.

The discovery of the hypnotic actions of sulphonal was accidental. The substance had long been known when Baumann and Kast fed it to dogs during studies in metabolism and were impressed with its hypnotic action. This discovery led to the investigations of closely related products, but none of those discovered since has any material advantage, except that of greater solubility.

The actions of sulphonal and trional differ from those of hydrated chloral largely in their slighter effect on the heart and medullary centers, in their slighter solubility, slighter irritant action and their slower absorption with slower onset of action. They cause depression of the higher centers, inducing sleep in the absence of pain, with little disturbance of the respiration or circulation. Their toxicity is of importance almost exclusively with long-continued use, as very large single doses commonly cause only prolonged sleep, and slight disturbances.

Sulphonal and trional are relatively insoluble, so that they are given as powders or mixtures, and are slowly absorbed, the hypnotic action being usually delayed for an hour in the case of trional and about two hours after sulphonal, which is even less soluble than trional. Occasionally the sleep may be delayed until the following day, or it may occur after the usual interval and drowsiness result on the following day with sleep at the usual hour some twenty-four hours after its administration.

The relative harmlessness of large doses of sulphonal is shown by the effects of a single dose of 100 gm. taken by a student. This was followed by unconsciousness in forty-five minutes. The temperature fell at first but later rose above normal. Sleep lasted five days; this was followed by exanthemas on the sixth day and complete recovery. In another case a dose of 30 gm. caused death from respiratory failure on the third day. Anemia increases the susceptibility to its action, and women are more susceptible than men. Such doses as these are never given in therapeutics and can be of importance only in case of accident or suicide.

The danger from the continued use of sulphonal is especially insidious, because one may take it in constant dosage for long periods without its occasioning any symptoms until these develop quite suddenly in severe form. About 60 per cent. of the cases in which symptoms of severe poisoning occur result fatally despite the most careful treatment.

The following illustrates the fact that long-continued immunity is no guarantee that this will continue:

> A woman suffering from sleeplessness and hallucinations used daily doses of 1 to 1.5 gm. of sulphonal during three

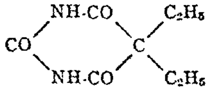
months, after which she became ill, vomiting greenish fluid, the urine was scanty and dark brown from hematoporphyrin; death was preceded by convulsions.

The urine should be examined frequently for hematoporphyrin in every case in which one of these drugs is used habitually. The appearance of hematoporphyrin in the urine indicates the destruction of the hemoglobin of the blood, and calls for the stoppage of administration and the administration of alkaline water in abundance to hasten the elimination of the poison. The treatment must be continued for several weeks after severe symptoms develop. The actions of trional and tetronal, which are used comparatively little, are similar to those of sulphonal.

The earlier laboratory experiments indicated that tetronal was the most actively hypnotic, trional next, and sulphonal the least, but these results obtained on dogs do not apply to man, and trional has become the more popular, while tetronal has never acquired such popularity as the other two.

VERONAL

Veronal is closely related chemically and therapeutically to sulphonal and trional, its formula being:



Chemically, it is diethyl-barbituric acid, or diethyl malonyl urea. Its actions do not differ essentially from those of sulphonal and trional qualitatively, though it is more active than the latter. It is somewhat more prompt in its action.

Soon after its introduction into therapeutics veronal was used in doses of 1 gm. and numerous deaths from it were reported. Experiments on animals indicate that veronal is slightly more active than hydrated chloral, equal doses of veronal causing an even greater depression, with fall of blood-pressure.

Numerous preparations which resemble sulphonal and veronal somewhat have been introduced as hypnotics, and while several of these have merit, the reader is referred to New and Nonofficial Remedies for a discussion of them.

ALDEHYDS

Acetaldehyd causes excitement before inducing sleep, as previously mentioned, but paraldehyd, a polymer of acetaldehyd, is more actively hypnotic without inducing excitement, and has less depressant action on the respiratory center. It is one of the safest of hypnotics, but it has an extremely unpleasant penetrating odor which pervades the room of the patient and which persists for more than a day; it has a persistent disagreeable taste. It has very little action on the heart even with large doses.

Several ketones are of pharmacologic interest, and a few compounds which depend on their ketone groups for their hypnotic action have been introduced into therapeutics; none are important. Acetone is actively hypnotic, and could be utilized therapeutically but for its irritant action on renal epithelium.

THERAPEUTIC USES

The actions of the hypnotics indicate their legitimate therapeutic uses, but caution is necessary regarding their use when sleeplessness is due to causes which can be removed. In other words, the hypnotics are in no sense curative, and should never be used when it is possible to induce sleep by removing or preventing that which interferes with it. Pain, worry, excitement and digestive disturbances are the common causes of sleeplessness, and these should be relieved or prevented by other means when possible. Pain should always be treated by analgesics rather than by hypnotics, of which large doses are required in the presence of pain, whereas small doses of analgesics suffice usually. The use of tea and coffee is a frequent cause of insomnia, and these should be stopped before resorting to hypnotics, of course.

Hydrated chloral is an antispasmodic, and is sometimes used to cause relaxation of the rigid uterine os during labor, and to abolish convulsions in tetanus; for this purpose large doses are required. It is used in combination with potassium bromid when sleeplessness is due to nervousness.

Hydrated chloral is contra-indicated in degeneration of the heart, and should be used cautiously in the presence of respiratory and circulatory disturbances. It is often recommended as an antidote to strychnin, but ether seems preferable in every way.

Sulphonal, trional and veronal are used as hypnotics in much the same conditions that hydrated chloral is, but have less action on the circulation and may be used when hydrated chloral is contra-indicated for that reason. These drugs should not be given continuously for prolonged periods, even when their use is attended with no visible signs of injury. They are also used as antispasmodics in epilepsy, hiccup, chorea and other conditions.

Paraldehyd may be used when hydrated chloral is contra-indicated by cardiac disease, or where a prompt action is necessary. It is also antispasmodic. Mention has been made of its usefulness in controlling alcoholic mania, and it is especially valuable in controlling mania during pneumonia and other diseases in which the heart is threatened with exhaustion and hydrated chloral is contra-indicated. Very large doses may be given in case of need without causing depression of the heart.

DOSAGE

Hydrated chloral is used in doses of 0.3 to 1.3 gm. (5 to 20 grains), but it is usually much better to employ it in the smaller doses in combination with twice as much potassium bromid where sleeplessness is due to nervous excitement; such a dose may require repetition in an hour, if sleep does not result. As an antispasmodic much larger doses may be required, but it is better to give the larger dose just mentioned and continue the smaller doses until relief is afforded, or until toxic symptoms indicate that the limit of therapeutic dosage has been approached.

The average dose of sulphonal or trional is usually stated as 1 gm. (15 grains), but 0.6 gm. (10 grains) often proves effective. The daily dose should not exceed 2 gm. (30 grains). The older tables gave the dose of veronal as 1 gm. (15 grains), but this is certainly too large for the average, and the dose should be from 0.3 to 1 gm. (5 to 15 grains).

The insoluble hypnotics should be given in the form of powders, which may be enclosed in capsules or suspended in hot milk, which is somewhat sedative, but which should be sipped and not drunk rapidly, as it forms an indigestible curd when taken in the latter way, whereas when sipped it is precipitated in flaky curds which are much more readily digested.

Hydrated chloral is best taken in a large amount of water or in warmed milk.

The dose of veronal sodium is about the same as that of veronal; it is more soluble and acts somewhat more rapidly. The aqueous solution has a bitter alkaline taste that is objected to by some patients. It should be given well diluted.

The average dose of paraldehyd is 2 c.c. (30 minims), best administered with cracked ice or in ice-water, on account of its disagreeable taste. It should not be long continued owing to the danger of the formation of the habit similar to that with alcohol. Much larger doses are usually required to control alcoholic mania, and from 10 to 15 c.c. (2 to 3 teaspoonfuls) may be given and repeated in half an hour.

A word of caution should be uttered here in regard to the use of Bromidia: This preparation is said to represent 15 grains of hydrated chloral, 15 grains of potassium bromid, 1/8 grain of extract of cannabis indica and 1/8 grain of extract of hyoscyamus in each teaspoonful of the preparation. It is obvious that if this formula is correct a teaspoonful of Bromidia contains four full therapeutic doses of hypnotics and narcotics. The ingredients are incompatible, because extract of Indian cannabis contains a resin not soluble in the menstruum employed. There is no excuse whatever for combining such a mixture of drugs when a simple hypnotic is required, and if an analgesic is necessary morphin or antipyrin should be used.

MATERIA MEDICA *

Chloralum Hydratum.—Hydrated Chloral, U. S. P. This drug, popularly known as chloral hydrate, CCl_3CHO+H_2O, is the combination of trichloraldehyd or chloral, $CCl_3.CHO$, with one molecule of water. It occurs as colorless, transparent crystals having an aromatic, penetrating odor and a bitter and caustic taste; it is slowly volatilized when exposed to air. It is very soluble in water, alcohol or ether. Hydrated chloral is incompatible with alkalies and alkali carbonates, which cause the formation of chloroform. A compound of chloral believed to be chloral alcoholate sometimes separates out from mixtures containing hydrated chloral, an alkali, a bromid and alcohol. Hydrated chloral is best administered in simple aqueous solutions with or without the addition of a bromid. The bitter and caustic taste may be effectually masked by sirup and aromatics.

Veronalum.—Veronal, N. N. R. This substance is also known as diethyl barbituric acid, diethyl malonyl urea and malo-urea. It is described chemically as 2,4,6, trioxy-5-diethyl pyramidin, a ureid derived from diethylmalonic acid and urea. Veronal occurs as a white crystalline powder, odorless and having a faintly bitter taste. It is freely soluble (1:8) in alcohol and slightly soluble (1:500) in water. It may be administered in the form of powder or, like sulphonmethane and sulphonethylmethane, dissolved in hot liquids.

Paraldehydum.—Paraldehyd, U. S. P. Paraldehyd, $C_6H_{12}O_3$, is a polymer of acetaldehyd and occurs as a colorless transparent liquid having a strong characteristic but not unpleasant or pungent odor and a burning and cooling taste. It is freely soluble (1:8) in water, and miscible in all proportions with alcohol. Paraldehyd is preferably administered with cracked ice or ice-water, but it is frequently objected to because of the odor which persists in the breath.

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 909)

XXIII

SCARLET FEVER (Continued)

PROPHYLAXIS

This primarily presupposes an early diagnosis, and such a diagnosis may be very difficult in atypical and mild scarlet fever. No single symptom can be depended on as diagnostic, and any one or more symptoms may be absent. An association of a reddened throat and a strawberry tongue and an eruption typical of scarlet fever appearing in twenty-four hours, with fever, of course makes the diagnosis positive. Food poisoning may cause an eruption similar to that of scarlet fever, but would not cause the reddened throat. The eruption of measles comes much later in the disease. The eruption of German measles may simulate the appearance of scarlet fever and is found early, and the diagnosis of German measles from a very mild scarlet fever may be difficult unless other cases of German measles have occurred, and contact with such was positive, and the postcervical glands were enlarged; such a mild case of illness and eruption should be considered scarlet fever until proved to be caused by some other disease. Even a history of a previous attack should not prevent the suspicion, as scarlet fever can occur more than once in the same person.

The following diagnostic test was first suggested by Rumpel, in 1909, then more carefully described and recommended by Leede,[10] and reported by Jampolis[1] as being present in 199 out of 200 cases. On account of having been found in a considerable percentage of well persons, it cannot be considered pathognomonic, but only a suggestive diagnostic sign. The test is made as follows: A passive hyperemia is caused by a broad rubber band placed around the arm, just above the elbow joint, not sufficiently tight to obstruct arterial flow. This band is loosened in about fifteen minutes, and the skin on the inner surface of the elbow joint, on being stretched until it appears anemic, will show petechiae if the reaction is positive. It has been suggested that this phenomenon is caused by changes in the walls of the capillaries. A negative reaction is perhaps a greater indication that scarlet fever is not present than is a positive reaction that it is present. It has not been shown that such a test would not be positive in various anaphylactic conditions.

It has not been shown that any vaccine or antitoxin is of value in preventing or curing scarlet fever.

Much more interesting, and with greater promise of value, is the report of W. S. Barker[11] of St. Louis that the blood serum of patients who have had scarlet fever may be of value when injected into those who are ill with the disease.

The general prevention of this disease in schools is very similar to the methods suggested under diphtheria, namely: As soon as a case of scarlet fever is reported to the board of health and board of education, other children in this family, children in the same house or tenement, the child's playmates, and the children who are in close contact with the infected child, either in the schoolroom or in classes, must all be under suspicion. There is no object in taking any swabs from the throat, if the diagnosis of scarlet fever is positive, as no specific germ has been determined. The throats and tongues, however, should be inspected, and the temperature taken, and a record made of all possible contacts with the infected child within at least forty-eight hours of the child's becoming ill. It should be ascertained how many of these contacts have already had the disease, although, as previously stated, it not infrequently occurs more than once in the same individual. These contacts or possible contacts should not be allowed in school until one week from the time of their possible exposure. Children of the family, and frequently those from the same house, should not be allowed to attend school during the quarantine of the one infected unless they are sent to live in some other house or building. The measures taken to cleanse and clean the room in which the infected child sat are the same as described in diphtheria and measles. Fumigation is not needed. If more than one child in a given schoolroom comes down with the disease, that room might well be closed for a period of one week, not that the room could not be thoroughly cleansed of the infective germ in twenty-four hours, but lest "missed" or mild cases in this room will cause the disease in others. As soon as a week has passed, children who are well, and have not again been exposed to the disease, may return to school.

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* Owing to lack of space the materia medica of sulphonmethanum, sulphonethylmethanum and sodio-diethyl barbituras has been omitted from THE JOURNAL. It will be included when this series is published in book form.

10. Leede: Munchen. med. Wchnschr., 1911, lviii, 293 and 1673.
11 Barker, W. S.: Arch. Pediat., August, 1914.

The quarantine of a child's home, or of the person infected, is of course that prescribed by the board of health of the city or town in which the patient lives. It has been the rule to continue the quarantine for from five to ten days after desquamation has ceased, and in some cities from six to seven weeks is the term of isolation ordered by the boards of health. Unless we believe that the skin disseminates the disease, such a length of time is entirely inexcusable and unjustifiable. Quarantine should be raised as soon as the throat is well, as soon as the fever has entirely disappeared and the acute eruption has ceased. When desquamation is well established or should have occurred (sometimes it occurs very late), the patient should be released from quarantine, the placard removed from the house, and the other children in the family allowed to return to school. The desquamating child should not attend school because he is in the midst of his convalescence and is not yet safe from possible nephritis.

Although in all probability the infective germ does not live long in the secretions of the throat after the acute stage is over, it has been thought that continued suppuration, whether in the tonsils, nose, sinuses, ear or glands, could cause scarlatinal infection of others. This is probably doubtful; but children with such suppurations should not only be properly treated and of course excluded from school, but also kept for a time from playing with other children.

There seems to be no good excuse for preventing the wage earners of a family in which the patient is at all properly isolated from attending to their ordinary vocations. A schoolteacher, a nurse, an attendant on other children, or one who is employed in some public institution should stop work temporarily, but after one week of observation without other contact with scarlet fever they may be allowed to resume.

In view of the belief that the infection occurs in the mouth, throat and nose, persons exposed to this disease should use gargles or sprays in the throat and sprays in the nostrils of some mild antiseptic solution three or four times a day for at least four days.

SYMPTOMS

This disease has a rapid invasion, except in very mild cases, with fever, sore throat, not infrequently vomiting, and there may be a convulsion in young children. The condition of the throat and the height of the temperature will give a quite definite indication of the severity of the disease, although mild cases may have very serious or troublesome complications. On the other hand, the temperature may be very high, and the type of the disease may be malignant.

Typically the eruption appears at the end of the first day, but may be present when the patient is first seen. It generally begins on the neck and chest (it may begin on the abdomen, or in the groins and axillae) and rapidly spreads over the whole body, and in a typically severe case the patient presents a scarlet hue from the forehead to the feet, and in this form the eruption is unlike that of any other disease. This bright color may gradually become darker, and in two or three days begins gradually to disappear. At its height the skin is markedly hyperemic, and any pressure renders it pale and anemic; but on removal of the pressure the color instantly returns, which is quite characteristic of this eruption. As soon as the acute stage of the eruption is past, the skin becomes rough and dry, and sooner or later desquamation begins, ordinarily the rash having entirely disappeared at the end of about a week. Punctate eruptions may be found in the roof of the mouth, very different from the Koplik spots found in measles, and the same reddish points may be found in the armpits and groins.

Unfortunately, the typical eruption described is often not present. The eruption may occur in patches, or on the chest only, or on or around some of the joints, and in mild cases the color of the eruption is not typical. Various irritations caused by food or drugs and various septic poisonings may produce eruptions that simulate that of scarlet fever. Frequently a doubtful case may be diagnosed by an associated inflammation of the throat, sore throat being absent in food and drug poisonings; but a septic sore throat may be associated with scarlatiniform eruption on the chest and abdomen. The cause of this eruption in many cases, however, is doubtless the drugs that have been administered, such as salicylic acid in some form, or some coal-tar product, or perhaps quinin. Some slight papular eruption may occur in scarlet fever, and there may be petechiae, and if the disease is malignant there may be large ecchymotic patches.

Many attacks are so mild that the diagnosis has not been made until desquamation begins; and, unfortunately, even desquamation may not occur, although desquamation may occur without much rash or eruption. Not infrequently a second desquamation may occur after the first has been practically completed. If the inflammation of the skin has been severe, not infrequently the epidermis comes off in pieces and patches, especially on the palms of the hands and the soles of the feet. Desquamation usually begins on the part first erupted, namely, on the chest and neck. It may be prolonged and tedious and last several weeks.

The characteristic tongue and the characteristic throat of scarlet fever need not be described, especially as they so greatly vary in appearance. The typical strawberry tongue may not be present. Also Kerley[12] states that the strawberry tongue is of little value: "I have seen it in many other illnesses." The inflammation of the throat may vary from simple redness of the tonsils, pharynx and soft palate to masses of membrane in these regions and in the nasopharynx. These so-called anginoid cases are always serious and more likely to cause complications and septicemia. It may well be noted here that it has been repeatedly stated that scarlet fever may occur without any eruption on the skin; therefore a suspicious throat and tongue, with diphtheria excluded, may be an atypical scarlet fever. However, with our better understanding of septic sore throat, real scarlet fever without eruption is probably exceedingly rare.

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[12] Kerley, C. G.: Personal Observation in Scarlet Fever, The Journal A. M. A., Oct. 24, 1908, p. 1407.

The fever does not always cease with the eruption, and the patient may have a more or less prolonged, tedious fever, even without definite complications. Generally this fever is due to a septic suppurative process, and will persist until the pus is evacuated, whether it is in a gland, a sinus, an ear or elsewhere. Nasal and nasopharngeal inflammations cause the temperature to persist long. Relapse in scarlet fever is rare.

THE BLOOD

A few years ago Döhle[13] stated that he had found in the blood of thirty scarlet fever patients "certain inclusion bodies" in the polymorphonuclear leukocytes, and thought that they might be pathognomonic of scarlet fever. He did not find these after the sixth day.

Kretschmer[14] confirmed Döhle's findings, and Nicoll and Williams[15] also found these bodies in the blood smears of a majority of scarlet fever patients, namely, forty-five times in fifty-one cases. That these bodies are pathognomonic of scarlet fever was soon denied by Ahmed,[16] who found them in other septic processes. Later, MacEwen[17] showed that without doubt streptococcic infection plays a positive part in causing these inclusion bodies, but that a differential diagnosis of scarlet fever from measles and German measles may be aided by finding these bodies in conjunction with a leukocytosis. In measles, it will be remembered, there is a leukopenia. Still more recently, Isenshmid and Schemensky[18] have concluded, after reviews and investigations, that these inclusion bodies are found in the polymorphonuclear leukocytes in practically all cases of scarlet fever in the early stage. They are not found in diphtheria, measles, German measles or whooping cough. They may be found in pneumonia, and perhaps in various septic infections. These inclusion bodies may be of different forms, but the most characteristic form is triangular with a long tail-like end.

There is always a leukocytosis of the polymorphonuclear cells in scarlet fever. It begins early, reaches its maximum at the height of the disease, and then gradually diminishes, unless there is some septic complication. If the leukocytosis is high, the disease is either very severe, or there is pus formation somewhere. Tileston, in his investigations of the blood of scarlet fever patients, found that the eosinophils were diminished at the height of the fever and eruption, and gradually returned as the rash disappeared. He did not find that any prognostic inferences could be made from the number of eosinophils as suggested by Bowie.[19]

Dick and Henry[20] have found that the kind of organisms present in the throat and in blood cultures have also been discovered in the urine of scarlet fever patients, and they suggest that possibly the frequency of nephritis is due to the excretion of these living bacteria through the kidneys.

COMPLICATIONS

Complications are so many, and some of them occur so frequently, as to be almost a part of scarlet fever, and as many times they are the cause of death, they deserve more than passing mention. The seriousness of anginose scarlet fever has already been mentioned. The treatment of such a septic throat is not different from that already described for diphtheria. Nasal inflammation is a frequent concomitant symptom of serious scarlet fever, and frequently one or more of the adjacent sinuses are affected. Even in young children in whom the sinuses have been considered anatomically unimportant, they are likely to become infected, not only the maxillary sinus and the ethmoid cells, but even the frontal and sphenoidal sinuses. Hubbard[1] discusses these sinus complications, and quotes Killian as believing that some form of sinusitis is nearly always present when there is any severe rhinitis in scarlet fever. The danger of these inflammations of the various sinuses, especially of the ethmoidal and sphenoidal cells, is that a septic phlebitis or meningitis may occur, which conditions are of the most serious prognosis. Hubbard states that "meningeal invasion is less likely to follow ethmoidal than frontal sinus empyema." Even at the best when one of the sinuses adjacent to the nostrils becomes inflamed and suppurative, the condition is likely to become chronic and to heal slowly, even under the best treatment, to say nothing of the danger of bone necrosis.

Any method of treatment of the nose and throat that prevents clogging or blocking of discharges in the nose or nasopharynx tends to prevent sinus complications and middle-ear complications, and the frequency of the latter (namely, middle-ear inflammation) in scarlet fever is too common to require comment.

Next in frequency to nose and ear complications are involvement of glands of the neck. These glands readily suppurate during, or after, scarlet fever. This is distinct from the enlargement or inflammation caused by diphtheria. With no other apparent cause for the persistence of fever, when the eruption is abating, an enlarged gland should cause suspicion (especially if there is an increase in leukocytosis), that pus has already formed in this gland.

While albuminuria is frequently present during the height of the temperature, the complication of nephritis is not likely to occur before the end of the second week, and may even occur as late as the fourth week, and this complication not infrequently occurs after mild attacks of scarlet fever. Nephritis is stated to occur in from 10 to 20 per cent. of all cases. While a mild albuminuria and even a few casts may not infrequently be found, a real attack of a complicating nephritis is always serious. The concomitant symptoms are those of nephritis, and the prognosis and treatment is that of acute diffuse nephritis.

Cardiac complications of scarlet fever are not frequent, but in septic cases serious endocarditis or pericarditis may occur. Not infrequently one or more joints may be attacked and may suppurate. Suppuration of the joint is a serious complication.

(*To be continued*)

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[13] Dohle: Centralbl. f. Bacteriol., Nov. 23, 1911.
[14] Kretschmer: Berl. klin. Wchnschr., March 11, 1912.
[15] Nicoll and Williams: Arch. Pediat., May, 1912.
[16] Ahmed: Berl. klin. Wchnschr., June 24, 1912.
[17] MacEwen: Jour. Path. and Bacteriol., 1914, xviii, No. 4.
[18] Isenshmid and Schemensky: München. med. Wchnschr., 1914, lxi, 1997.
[19] Bowie, J. M.: Jour. Path. and Bacteriol., March, 1902.
[20] Dick and Henry: Jour. Infect. Dis., July, 1914.

[1] Hubbard, Thomas: Accessory Sinus Suppuration in Scarlatina, Am. Jour. Dis. Child., July, 1911, p. 11.

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SATURDAY, MARCH 20, 1915

DIET AND RESISTANCE TO DISEASE

Whether or not diet is likely to exert any specific influence in the direction of resistance to disease would probably be answered differently according to the momentary point of view of the referee to whom the question was propounded. Obviously, if the decision involved the comparative effect of food versus no food, it would be admitted promptly that inanition offers conditions which may profoundly alter the defensive powers of an organism. But even if energy is offered in abundance in the form of proteins, fats and carbohydrates, may we assume that the body ought to be enabled thereby to offer its most effective resistance to detrimental influences, provided, of course, that an adequate digestive apparatus insures the actual absorption and assimilation of the nutrients furnished?

Whereas one might have been ready to give an unhesitating affirmative answer to the foregoing question a few years ago, the advances in knowledge regarding what may be termed the specific effects of certain foods will occasion some uncertainty at present. With the demonstrated distinction between polished and unpolished rice as a determining factor in the production of the polyneuritis seen in beriberi, with the evidence of the peculiar effect of orange juice on the symptoms of infantile scurvy, with other alleged dietary etiologic agencies for so-called deficiency diseases in mind, it is not strange that we should hesitate to pronounce any final answer to the question at this time.

Here, as elsewhere in the medical sciences, experiment alone may lead the way to safe conclusions. The study of the rôle of foods from the dynamic and economic points of view must be supplemented by information regarding their specific action. Already there are indications that certain constituents of foods have an effect on growth greater than that which would be indicated by their calorific value. Intimations of an influence of special foods on certain glands of internal secretion have been current, thus establishing an indirect way of affecting the functions of the organism by modifying some of its supposed regulatory devices or organs. Reid Hunt[1] gave a stimulus to inquiries in this field by his researches on the subject here involved. He observed some very striking alterations in the resistance of animals to certain poisons produced entirely by changes in diet. Thus, of animals kept on diets such as are in daily use by man, some were able to resist many (up to forty) times the amount of certain poisons fatal to animals kept on other diets. Although the results with certain of these poisons probably have no relation to man, yet they show that man is doubtless daily producing profound effects on his resisting power to poisons and diseases, a knowledge of some of which may be of much practical importance. And it seems certain that by the use of some of these reactions, changes in metabolism which are not recognized by the methods ordinarily employed may be detected. These results are in striking contrast to the essentially negative results obtained by chemical analyses of individuals fed on different diets. From these data one would be inclined to argue for a fixity of animal organization.[2] By Hunt's procedure, more subtle alterations of "constitution" come to light. For instance, he noted that certain diets, notably dextrose, oatmeal, liver and kidney, greatly increase the resistance of mice to acetonitril; their effect is similar in this respect to the administration of thyroid. Hunt argues that the effect of an oatmeal diet in increasing the resistance of certain animals to acetonitril is probably due in part to a specific effect of the diet on the thyroid gland; this is an illustration of how an internal secretion may be modified in a definite manner by diet. Certain diets (notably eggs, milk, cheese and various fats) greatly lower the resistance of certain animals to acetonitril; their effect is the opposite of that of thyroid. Several glands (notably prostate, ovaries and testes) affect the resistance of animals to poisons similarly, but much less markedly than the thyroid. Other glands (thymus, parathyroid, suprarenals) have either no effect or an effect opposite to that of thyroid. Diet also caused a distinct, but not marked, difference in the resistance to morphin.

A similar attitude toward the possibility that an apparently unrelated factor, such as diet, may modify the effect of a toxic substance has prompted the newer investigation of Opie and Alford at the Washington University Medical School in St. Louis. Some of their experiments relating to the influence of diet on necrosis caused by hepatic and renal poisons have already been described in The Journal.[3] Animals were fed on a diversity of diets differing essentially in their content of carbohydrate, fat and protein. Lesions were then produced in the liver by substances such as chloroform, phosphorus or alcohol, which have a peculiar affinity for the parenchymatous cells of the organ; or in the kidney by chromates, uranium nitrate or chloroform, which produce necrosis of parenchymatous renal cells. A study of the histologic changes in animals which died shows that susceptibility to these various poisons is dependent on the varying extent of necrosis in the liver or kidney induced by diet. All of the harmful substances were more toxic to animals which had received a diet of meat than for those subsisting on a ration consisting in great part of carbohydrate in the form of oats and cane sugar.

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[1] Hunt, Reid: The Effects of a Restricted Diet and of Various Diets upon the Resistance of Animals to Certain Poisons, Bull. 69, U. S. P. H. S., Washington, 1910.

[2] Mendel, L. B.: Biochem. Ztschr., 1908, xi, 281.

[3] Opie, E. L., and Alford, L. B.: The Influence of Diet on Hepatic Necrosis and Toxicity of Chloroform, The Journal A. M. A., March 21, 1914, p. 895; Influence of Diet on the Toxicity of Substances which Produce Lesions of the Liver or the Kidneys, ibid., July 11, 1914, p. 136; The Influence of Diet upon the Necrosis Caused by Hepatic and Renal Poisons, Part I, Diet and the Hepatic Lesions of Chloroform, Phosphorus, or Alcohol, Jour. Exper. Med., 1915, xxi, 1; *Part II, Diet and the* Nephritis Caused by Potassium Chromate, Uranium Nitrate, or Chloroform, ibid., p. 21.

The St. Louis pathologists have attempted to correlate their results with the known facts in relation to diet and metabolism. Carbohydrates tend to prevent the disintegration of body protein. They diminish the amount needed to maintain nitrogenous equilibrium in the organism, and consequently may reduce the elimination of nitrogen. If the necrosis produced by chloroform, phosphorus, etc., is the anatomic expression of advanced disintegration of body protein, a diet rich in carbohydrates may tend to limit this necrosis by protecting the body protein. Excess of protein in the diet, on the other hand, as shown by clinical and experimental evidence, is well known to increase metabolism as exhibited in its so-called specific dynamic action.

The explanation offered by Opie and Alford for the diminished susceptibility to intoxication after a diet rich in carbohydrate is interesting even if it is based on little more than analogy. There is a resemblance between certain human lesions and those produced by the toxic substances employed in the laboratory. We are reminded that toxemia of pregnancy, acute yellow atrophy of the liver and certain bacterial infections are characterized by necrosis of parenchymatous cells of both liver and kidney;[4] and a localized necrosis of hepatic and other cells is known to occur in numerous other diseases — eclampsia, malaria, diphtheria and typhoid fever. In a practical way we are reminded, therefore, that an abundance of carbohydrate may prevent the occurrence or retard the progress of these conditions. It would therefore seem to be not without advantage that carbohydrates are among the most easily administered and digested food products.

In contemplating researches of the character which we have outlined, one cannot escape the conviction that experiments of this sort will sooner or later help to unravel the secret of those vague entities described as "constitution," "diathesis" and "the resisting power of the individual."

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[4] Opie. E. L.: Jour. Med. Research, 1904, xii, 147.

THE ETIOLOGY OF TRACHOMA

A short time ago trachoma in this country was regarded as an exotic disease. Guardianship, to prevent its introduction by immigrants, is still necessary; but we have learned now, largely through investigations of the Public Health Service, that trachoma is prevalent in many sections of the United States. Each year it becomes a more important and difficult public health problem. Our lack of knowledge of its real nature renders uncertain our efforts to establish a rational and intelligent prophylaxis.

In studying the etiology of trachoma, the diagnostic confusion which exists concerning it has caused some earnest students to deny that the disease is a morbid entity, and to assert that it is simply the reaction of the conjunctiva, under certain circumstances, to some of the well-known bacterial infections, such as the gonococcus or Koch-Weeks bacillus.[1] Axenfeld[2] recently has probably expressed the generally accepted opinion. He affirms the "etiologic unity" of the affection. The common bacterial infections are readily implanted on a trachomatous base, and these mixed infections furnish many of the "acute" trachomas. From the barren results of much bacteriologic investigation, however, it seems easy to assume that the cause of trachoma will probably not be found among the bacteria as we now know them.

The infectiousness of trachoma is hardly open to doubt. Perhaps all authorities are agreed that it is a communicable disease spread by more or less direct contact. This view not only rests on clinical observation, but also has been demonstrated by the experimental method in both human beings and animals. Neither the degree nor the duration of its contagiousness is understood. The determination of these points would not be a simple affair, since trachoma is not readily inoculable into the lower animals. The smaller animals do not seem to be at all susceptible, and few species of the lower monkeys have given any positive results. The higher monkeys, such as chimpanzees and orang-utans, are reported as successfully inoculated by several workers, but the disease as reproduced is of a benign type, undergoes spontaneous healing in a comparatively brief time, and seldom shows any scar formation.

The virus of trachoma is probably feeble and withstands unfavorable influences poorly. The numerous observations as to the slow and uncertain manner in which the disease spreads among families or other closely associated persons, as well as the important influence of poor hygienic surroundings and lowered resistance from any cause, are good evidence to this effect. Moreover, cases are not rarely observed in which the disease remains confined to one eye despite the large opportunity offered for infection of the other eye.

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[1] Williams and Others: A Study of Trachoma and Allied Conditions in the Public School Children of New York City, Jour. Infect. Dis., 1914, xiv, No. 2; abstr., THE JOURNAL A. M. A., April 18, 1914, p. 1285.

[2] Axenfeld, T.: Die Aetiologie des Trachoms, Fischer, Jena, 1914, with bibliography and colored plates.

Notwithstanding experiments, both human and animal, the question of the filterability of the virus remains undetermined. Experimental evidence available permits no more than the suspicion that the virus may be filterable under some circumstances, that is, during some stage of the life history of the causative organism.

There seems to be no real immunity, either congenital or acquired. Much has been written in this connection about "disposition," "constitution," race and climate, but a careful estimation of such factors, while it does not entirely eliminate their importance, scarcely permits us to infer that they correspond to an immunity in the strict sense of the word.

Of all the numerous bacteriologic and microscopic studies of trachoma, only one positive finding has been accepted: the discovery by Prowaczek[3] in 1907 of the so-called inclusion or trachoma bodies. The nature of these bodies, however, and their possible etiologic relation to trachoma, still remain undetermined. Lindner[4] has described another form of these bodies, but this has added little to our knowledge. Noguchi and Cohen[5] have recently reported the successful culture of these inclusion bodies, but since the cultivated bodies proved non-pathogenic, the question still remains an open one. The question of the nature of these Prowaczek inclusion bodies is quite similar to the one provoked by the discovery of the Negri bodies in rabies, the old question as to whether such bodies are to be viewed as cell changes of some character without etiologic significance, or whether they are of a parasitic nature and of real importance in the causation of the disease.

Even if we accept it as highly probable that these bodies are living micro-organisms—and this is by no means assured—there are two very important facts which stand in the way of their acceptance as the probable cause of trachoma. First is the noteworthy fact that their presence in trachoma is by no means constant. Out of a total, for example, of 771 cases examined by various workers, 52 per cent. were found positive among "fresh" cases, and 12.5 per cent. among older cases.[2] In the latter group may perhaps be found many "scarring" cases, which always seem to offer the smallest number of positive results. Second is the equally noteworthy circumstance that inclusion bodies have been found in other conditions than trachoma, and on other mucous surfaces than that of the eye, and are even reported as occurring on normal mucous membranes. Their chief seats, however, appear to be confined to trachoma and to "inclusion conjunctivitis" of the new-born, along with the genital tracts associated with the latter. Indeed, apparently they are found more freely and more constantly in "inclusion conjunctivitis" of the new-born than in trachoma itself. This has naturally raised the question of the identity of these two diseases, but so far neither clinical nor experimental evidence will permit such a conclusion.

In the midst of so much confusion and uncertainty it is difficult, indeed impossible, to form definite conclusions. Axenfeld,[2] in his careful and sympathetic review, concludes that the inclusion bodies of Prowaczek are in all likelihood micro-organisms of some kind, although certainly different from any bacterial forms known to us; but that evidence for any specific etiologic value for them is still wanting. He directs attention to the importance of "inclusion blennorhea" of the new-born, and recommends a wider study of the entire question of "inclusion virus." "That line of work," he says, "which for the present gives greatest hope of success is a more thorough study of the Prowaczek inclusion bodies, especially with reference to pathologic anatomy and zoology, along with a critical consideration of all the possibilities involved." A careful examination of these bodies, and of the questions raised by their discovery, "holds out the hope not only of further advance, but perhaps even of the final solution of the trachoma problem itself."

The rapidly growing importance among us of this subject now not only invites but also demands the attention of American investigators. Before further progress can be made, we must look to the laboratory for fuller knowledge of the real nature of this disease. It is a question which up to now has baffled the best efforts of many able and earnest workers.

ASSUMED DANGERS DURING VOMITING

Vomiting is one of the symptoms which attend a large number of ailments, and is therefore frequently encountered in general practice. To the physiologist it is of interest as an example of a complicated reflex act in which various sensory nerves and other parts of the nervous system, certain efferent motor nerves, and perhaps a definite vomiting center are concerned. The pharmacologist, who has to deal with emetics, has devoted attention to the parts of this complex mechanism on which the individual examples of this class of drugs may act. To the practitioner, however, vomiting is in general merely an indication of some disturbance, the cause of which he must discover and eliminate, if possible. There are numerous disorders, not only of a gastro-intestinal or abdominal character, but also of cerebral origin, in which the occurrence of persistent emesis is of considerable diagnostic importance.

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[3] Halberstädter and Prowaczek: Deutsch. med. Wchnschr., 1907, xxxiii, 1285; Arb. a. d. k. Gsndhtsamte, 1907, xxvi, 44.

[4] Lindner: Die freie Initialform der P. Einschlüsse, Wien. klin. Wchnschr., 1909, xlix, 1697; Arch. f. Ophth., 1910, lxxvi, 559.

[5] Noguchi and Cohen: Experiments on Cultivation of So-Called Trachoma Bodies, Jour. Exper. Med., 1913, xviii, No. 5.

There is a widespread assumption that the blood pressure is greatly augmented during vomiting. It is believed that clinical literature contains a good many indirect references to this subject,[1] and physicians are warned not to give emetics to patients whose arteries are atheromatous, in view of assumed danger of a rupture of the blood vessels. Actual evidence bearing on this somewhat prevalent belief is hard to find. Here, as so often happens, the proof of direct experiment has clearly been called for; and the subject has received an investigation in respect to the mechanism of the changes in the blood pressure during vomiting and its control during such times, at the hands of Brooks and Luckhardt.[1] They believe that there are different types of vomiting, the variations depending principally on the character of the drug employed, or upon the consistency of the gastric contents or the degree of participation of the skeletal musculature or of the diaphragm or the gastro-intestinal musculature, respectively. In general, two distinct types of vomiting may manifest themselves. First, there is the rapid projectile type, characterized by suddenness of onset, with slight premonitory symptoms, and with apparently a preponderance of gastro-intestinal tract activity over the activity of the skeletal muscular system. Second, there is the slow, labored type of vomiting characterized by rather marked premonitory symptoms and with apparently more of the skeletal muscles taking part in the process, which consists of prolonged violent retching movements. Meanwhile there are great oscillations of the blood pressure.

As a result of the detailed study of vomiting induced by digitalis or apomorphin given subcutaneously, or by zinc sulphate or magnesium sulphate administered orally, Brooks and Luckhardt have ascertained that vomiting is accompanied by marked changes in the circulatory system and interference with respiration. There is seen sometimes a period of elevated pressure. More frequently, however, and contrary to inherited expectations, one witnesses a sudden and enormous drop in blood pressure, with cardiac inhibition at the moment of emesis, but always periods of great oscillations in the blood pressure. These great and sudden oscillations of the blood pressure may cause a rupture of blood vessels which would not occur with the same pressure, but with slower changes. The faint feeling accompanying emesis may be the result of the cerebral anemia occasioned by the cardio-inhibition and resulting drop in blood pressure. The danger of damage to the vascular system is not minimized by these newer investigations; but the responsibility for possible harm is shifted from hypertension to the sudden variations in the condition of the circulatory apparatus.

THE PROBLEM OF FATTY DEGENERATION

The problem of true fatty degeneration, as contrasted with the fatty infiltration of organs, long ago resolved into the question whether or not fat can be formed directly from protein in tissue cells. If the proof of the latter transformation is forthcoming, the chemistry of possible fatty degeneration will be more clearly understood, and, conversely, the unimpeachable demonstration of actual fatty degeneration must be accepted as strong evidence of the ability of an organism to produce fat out of protein. The story of the shifting views which have been held on this subject from year to year, the supposed proofs of the validity of each contention, the successive disillusionments and counter-proofs, the battles of words reinforced by conflicting experimental evidence — all of this forms one of the interesting chapters in the progress of the medical sciences. The following summary, will, we believe, be accepted as a fair statement of the present status of the subject: It is agreed that carbohydrates and glycogen, as well as sugar, can be formed from protein. The fact cannot be denied that possibly an indirect formation of fat from protein, with carbohydrate as an intermediate step, can take place. The possibility of a direct fat formation from proteins without the carbohydrate as intermediary must also be generally admitted, although such a formation has not been conclusively proved.

When the advance of experimental science encounters a stumbling block in its path, it usually requires the advent of new methods of research to clear the way for further progress. The chief excuse for recurring here to the much-discussed theme of fatty degeneration lies in the opportunity which more recent procedures have given for a promising reinvestigation of its problems. The perfected perfusion of vital organs with suitable circulating mediums, and the consequent retention of function for periods of time impossible a few years ago, have made it possible to study certain tissue changes *in situ,* so to speak, without the complicating factors introduced by the indirect participation of other organs through the medium of the circulation. The perfusion fluid may be blood or a simple Ringer's solution; it can be regulated and analyzed at will.

The perfusion method has been drawn on in the Medical Clinic at Greifswald to contribute to the problem under discussion. Gross and Vorpahl[1] have permitted isolated kidney to be maintained for some time under suitable conditions of survival. In some of these there was what they regard as an indisputable increment of true fat. It was appreciable microscopically as well as chemically, and particularly so when

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[1] Brooks, C., and Luckhardt, A. B.: The Blood-Pressure During Vomiting, Am. Jour. Physiol., 1915, xxxvi, 104.

[1] Gross, O., and Vorpahl, F.: Beitrag zur Lehre von der Verfettung parenchymatöser Organe, Arch. f. exper. Path. u. Pharmakol., 1914, lxxvii, 317.

[illegible] Medical College

glycerol was added to the perfusing liquid, which was fat-free Ringer's solution. The requisitioning of the glycerol is interesting in view of the contention that the production of the fatty acids was possible even when precursors of glycerol were not present. Obviously, both of the antecedent components of fats are necessary to produce the neutral glycerids. Gross and Vorpahl look on their new experiments as proof of the formation of fatty acids from proteins by living cells. Their suggestive work now awaits confirmation.

ADDITIONAL NARCOTIC LAW REGULATIONS

Additional regulations concerning the Harrison Narcotic Law were issued by the Commissioner of Internal Revenue under date of March 9. They appear in the Treasury Decisions for March 11. These rulings are supplementary to the Internal Revenue Regulations, No. 35, issued January 15. The two sets of regulations include all the rulings made up to date. There are several points which should be noted by physicians.

Liniments, ointments or other preparations containing drugs not specifically exempt, used for oral, nasal, aural, ocular, rectal, urethral and vaginal administration, are not regarded as being used externally and are therefore not exempt from the provisions of the law regarding the external applications. A rule of great importance to specialists provides that physicians or dentists administering minute quantities of the drugs included under the law in their offices may keep a record of the date when a stock solution is made and the date when such stock solution is exhausted, without keeping a record of the name and address of each patient to whom such drugs are administered. This plan will be allowed only in the case of those physicians and dentists who use minute quantities of these drugs. Under this rule, the specialist in diseases of the eye, ear, nose and throat, etc., doing an office practice and using one, five and ten per cent. solutions of cocain as a routine procedure will not be required to keep a record of each patient on whom these solutions are used. He will be required simply to keep a record of the date when his stock solutions are made up and the date when they are exhausted, with, presumably, a record of the quantity of solution made up and the quantity of drugs it contained. Evidently the object of the regulation is to restrict the use of such solutions to legitimate purposes with the least possible amount of interference to the physician. This ruling clears up a point on which a large number of inquiries have been received. A physician engaged in general practice who administers such drugs is required to keep a record of the name and address of the patient, of all drugs dispensed, distributed or administered in his office, and of such drugs left with the patient to be taken in his absence. With the exceptions noted above, only such drugs as are personally administered by a physician to a patient and away from his office are exempt from record.

In the regulations just issued appears for the first time the official ruling defining personal attendance. According to this, a physician must actually be absent from his office and in personal attendance on a patient to come within the exemption specified in Section 2 of the law. Drugs dispensed to a patient in the office or left at a patient's home to be taken during the absence of the physician must be recorded.

Druggists filling prescriptions or order blanks calling for any of the specified drugs are not required to demand a receipt for them. Educational institutions using the specified drugs in laboratories and for other purposes must register, pay the special tax and keep a record. The exemptions in Section 6 by which certain preparations containing the minimum quantity of specified drugs are exempt from the provisions of the law are held to apply only to United States Pharmacopeia standard preparations or to remedies prepared under private formula such as are usually carried in stock by druggists and dispensed without prescriptions and not to pseudopreparations or remedies prepared and sold on account of the narcotic drugs which they contain. Druggists having reason to believe that any prescriptions presented to them are forged or that the quantity of drug prescribed is unusually large should, before filling such prescriptions, satisfy themselves that the prescriptions are genuine and are properly prepared.

Inventories showing the amount of drugs on hand on March 1 must be retained by the person making the inventory and not sent to the Collector of Internal Revenue. Such inventories must be sworn to.

The provision in the law requiring physicians to sign their full name to a prescription is defined as meaning that they must sign their prescriptions in the same way that they would sign a check or a legal document, i. e., with their ordinary business signature. Nurses are not allowed to register and can have narcotic drugs in their possession only under the direction of registered physicians. They can obtain supplies of such drug only on a registered physician's prescription, and only when nursing patients of such physicians.

Ointments, liniments, etc., intended for external use must be denatured or rendered unfit for internal administration. Order forms are not to be used as prescription blanks, but only for obtaining supplies of drugs from dealers. Paregoric prepared according to the United States Pharmacopeia standard contains not quite two grains of powdered opium to the fluid ounce and is therefore exempt.

Where two or more physicians are in partnership doing business under a firm name, it is necessary for the firm to be registered, and the registry number to be indicated in ordering drugs for use in office practice.

Each individual physician must also register and pay the special tax under his own name if he is engaged in private practice on his own account. Physicians maintaining an office in more than one internal revenue district must register in each district, but if not maintaining more than one office, registration in one district permits him to practice in any other district. Physicians may use any prescription blank provided it is properly dated and signed and contains the physician's address, his registry number and the name and address of the person for whom the prescription is written. The government does not furnish prescription blanks or prescription blank forms.

The following persons are eligible to registry provided they are legitimately engaged in the practice of their profession in accordance with the laws in the state in which they reside: persons engaged in the practice of medicine and surgery, persons engaged in the practice of dentistry, persons engaged in the practice of veterinary medicine and surgery, persons engaged in the importation and sale of drugs or the manufacture of drugs at wholesale or retail. Osteopaths, unless classed as physicians in accordance with the laws of the state in which they reside, will not be permitted to register under this law. Special tax stamps must be posted in a conspicuous place for every person registered under the law.

Current Comment

INOCULATION AGAINST CHICKENPOX

In the early part of the last century, numerous efforts were made to transfer chickenpox in the same way that vaccinia is transferred, but with altogether negative results. Recently, however, Kling[1] in Stockholm has obtained positive results without any special difficulty, the inoculated disease being as a rule simply a local reaction, but nevertheless protective against the natural disease. Kling believes that the reason he is succeeding where others have failed lies in the method employed. The virus should come from an absolutely healthy child, above all, of course, free from syphilis and tuberculosis, and it should be the clear content of a fresh vesicle in as early a stage as possible both of the disease as well as of the vesicle itself. Kling inserts the point of a sterile lancet into a vesicle like this and then simply sticks the point into the skin of the child to be inoculated, the skin previously cleansed being held taut, and the effort made to insert the virus into the skin without necessarily drawing blood. When two or three such insertions are made, new virus is taken, the inoculations being repeated six times in each case. It seems that in at least some cases of failure too few inoculations probably were made, because by no means all the separate inoculations in a given case will take. The area inoculated (Kling uses the left arm) is bandaged properly. The mild traumatic reaction subsides in a day or two, and if the result is positive, on the eighth day as a rule one or more red papules develop in the inoculated area, the papule in a day changing to a vesicle which increases in size for two or three days, and then dries up into a scab which eventually falls off, leaving an insignificant scar. Occasionally several vesicles may appear in succession and Kling has inoculated successfully from one individual to another for five generations. Kling now has inoculated 135 cases with failures in 23 per cent. In only ten instances was there any eruption outside of the area on the arm, and three instances of a really generalized eruption. As a rule there have been no general disturbances; occasionally a slight fever. It appears, then, that inoculated chickenpox is a mild local disease, and the question at once arises, Is this disease followed by protection? There is no doubt that protection is established, because in the children's hospital in which Kling is working, none of the inoculated children have acquired chickenpox, while of 108 that were not inoculated, 73 per cent. acquired the disease. Hence "varicellation," as Kling calls the inoculation, is a good means of prevention that may prove of practical value, especially in institutions in which chickenpox sometimes is a serious disease.

THE ETIOLOGY OF YELLOW FEVER

The first person who suggested the possibility of the mosquito being in any way connected with the etiology of yellow fever will probably never be definitely known. Undoubtedly Finlay was the first to advance the positive hypothesis that the mosquito was the sole transmitter of the disease, although he failed to prove his theory. It was largely due to his pioneer work that the investigation of Reed, Carroll and Lazear was undertaken. Since the mosquito theory has been placed on an uncontrovertible basis, the practical prevention of epidemics of the disease has been possible. A specific cure of individual cases and the eradication of endemic foci are the two things yet needed to complete the mastery of the problem. The chief difficulty is the identification of the causative organism, which has so far been persistently elusive. In a summary of our knowledge of the etiology of the disease, Camerer[1] notes that many men are still actively engaged in looking for the ultimate etiologic factor. Thomas, in 1907, succeeded in inoculating a chimpanzee by the bites of infected mosquitoes. Three days later a typical attack of yellow fever occurred. As a sort of corollary to this experiment, Balfour has recently advanced the hypothesis that the "reservoir of infection" may be found in certain tribes of monkeys. He bases his belief on the fact that in certain localities prior to an outbreak of yellow fever, monkeys of the "red howler" (*Mycetes siniculus*) tribe have been found dead or dying in the nearby forests, apparently as the result of some disease with symptoms allied to those of yellow fever. In this connection, it is worthy of note that endemic yellow fever is now found only in regions in which monkeys abound. If it could be proved that the monkey bears some such relation to yellow fever as the rat to plague, it would not only give us the proper cue for eradication of endemic foci, but would also afford great opportunity to conduct experiments looking toward the identification of the causative organism. That this etiologic factor is a living organism seems indisputable. As Camerer observes, the fact that a certain specific time is necessary for its development both in man and the mosquito rules out the possibility of its being of chemical nature. Not only does all the evidence point to a living organism as the cause, but there is presumptive evidence that it is some form of protozoal rather than bacterial life, because the cycle of development in the mosquito is inhibited by low temperature, and takes place best at a constant temperature of 30 C. (86 F.). Parker has advanced the theory that the life cycle is somewhat similar to that of the malarial organism, with the sexual and asexual cycles reversed, the former occurring in man, the latter in the mosquito.[1] What with the known facts in regard to its transmission and the reasonable hypotheses relative to the specific nature of the etiologic factor, together with the sustained interest in the subject, it is not too much to hope that we are approaching the final solution of the mysteries with which yellow fever has been so long enshrouded.

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[1] Kling: Hygiea, 1913, lxxv, 1032; Berl. klin. Wchnschr., 1913, L, 2083; ibid., 1915, lii, 13.

[1] Camerer, C. B.: A Résumé of Etiological Factors Concerned in Yellow Fever, U. S. Naval Med. Bull., January, 1915.

THE IDENTITY OF THE BOAS-OPPLER BACILLUS IN GASTRIC CANCER

The stomach contents derived from persons suffering from gastric cancer frequently disclose the presence of a large, non-motile, acid-forming Gram-positive micro-organism, to which attention was called by Oppler and Boas[2] in 1895, and which is familiarly known in clinical literature as the Boas-Oppler bacillus. The importance of the finding of this organism in the cases examined rests on the assertion that it is present in sufficient frequency to furnish valuable corroborative evidence of the existence of malignant disease, as contrasted with other pathologic conditions, such as a benign stenosis of the pylorus. There is some difference of opinion as to whether the Boas-Oppler type of bacilli is never found in the non-malignant forms of gastric disease, and organisms closely resembling it have occasionally been observed in chronic gastritis. Nevertheless, there is a widespread belief in the significance of the Boas-Oppler bacillus in the differential diagnosis between malignant and non-malignant manifestations of the stomach. The conditions which prevail where the Boas-Oppler bacillus is found are such as attend the absence of hydrochloric acid from the stomach. The lack of this antifermentative agent favors the development of lactic acid producing organisms. The lactic acid itself exerts an inhibitory influence on the growth of most organisms. A recent investigation from the Stephen Ralli Memorial Laboratory in the Royal Sussex County Hospital at Brighton, England, suggests that the morphologic resemblances and the power of multiplying in strongly acid mediums bring the Boas-Oppler bacillus within the same category as certain acidophil bacteria which have gained much prominence in the past few years.[3] The representative member of the group, the *Bacillus bulgaricus*, has been called into prominence in connection with its involvement in the production of soured milk. Closely related are the *Bacillus acidophilus*, *B. gastrophilus* and *B. bifidus*. The possible identity of these varieties must be borne in mind.[4] Specimens of the Boas-Oppler bacillus were obtained by Galt and Iles[3] from definite cases of carcinoma of the stomach; in these, free hydrochloric acid was absent and lactic acid present in the stomach contents. After a comparison of the morphologic and cultural characteristics after cultivation under standard conditions with those of a known strain of the *Bacillus bulgaricus*, the conclusion was reached that the bacillus found in gastric cancer is identical with this and not an organism *sui generis*. The inference was drawn that in such cases it is the absence of the hydrochloric acid that allows the growth of the bacillus, and that the lactic acid is formed as the result of the activity of this organism.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CONNECTICUT

Personal.—Dr. and Mrs. William J. Sheehan, New Haven, who went to Paris in October of last year as volunteers for service in the American Ambulance Hospital, have returned. ——Dr. Erastus P. Swasey, New Britain, who has been *under treatment* in the Charter Oak Hospital, Hartford, is showing improvement and has returned home.——Dr. Charles J. Bartlett has been elected president of the Board of Health of New Haven, vice Dr. John F. Sullivan, New Haven, who declined reelection.

ILLINOIS

Personal.—Dr. Glenford L. Bellis, head of the Cook County Tuberculosis Hospital, Oak Forest, has been appointed superintendent of the new Milwaukee County Tuberculosis Sanatorium and will assume charge April 1. ——Drs. Whedon W. Mercer, Peoria, and E. O. Jacoby of the medical staff of the Anna State Hospital, have resigned. ——Dr. Frank R. Frazier, Yorkville, was operated on for appendicitis in the Presbyterian Hospital, Chicago, March 3.

Chicago

Medical Woman's Club.—At the meeting and dinner of the Medical Woman's Club of Chicago, March 10, Dr. Joseph B. DeLee was the speaker and Dr. and Mrs. Frederick Tice and Miss Grace Abbott of the Immigrant's Protective League, were the guests of honor.

Personal.—Dr. Cyrille Vermeren has been appointed Belgian Consul in Chicago.——Dr. William E. Buehler has resigned from the presidency of the Public Safety Commission of Chicago and Cook County.——Dr. Anthony Biankini was elected president of the Croatian League at its meeting March 11.

Sanatorium Opened.—The Chicago Municipal Tuberculosis Sanatorium was opened to admit patients March 9 and eight patients, six women and two men, were admitted. Persons who desire to obtain admittance to the sanatorium should communicate with the loop office of the institution at 105 W. Monroe St., or with one of the ten dispensaries distributed throughout the city.

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[2] Oppler and Boas: Deutsch. med. Wchnschr., 1895, xxi, 73.

[3] Galt, M. H., and Iles, C. C.: A Study of the Boas-Oppler Bacillus, Jour. Path. and Bacteriol., 1914, xix, 239.

[4] Heinemann and Hefferan: Jour. Infect. Dis., 1909, vi, 304.

Organization of Postgraduate Bureau.—The Chicago newspapers of the past week have contained rather sensational announcements concerning a plan to make Chicago the "Medical Center of the World," through the organization of a postgraduate school. As far as we are able to learn the tentative plan, as at present outlined, simply proposes the establishment of a central bureau for the listing of clinics day by day, similar to the plan now prevailing in New York and Philadelphia. The movement, however, is in the preliminary stage only.

Health Exhibits.—The Chicago Health Department began on March 9, an aggressive propaganda along the lines of health conservation, sanitation and general welfare and education. Simultaneous exhibits are being made in six centers in the city, namely, the Central Y. M. C. A. Building; the Sears-Roebuck Y. M. C. A. Branch; Hyde Park Y. M. C. A. Branch and the Parkman, Clark and Agatha schools. The exhibit includes contagious diseases, infant welfare, food inspection, sanitation, hospitals and laboratory and vital statistics. Each of these exhibits is continued in rotation at the centers named. Lectures will be delivered at the Central Y. M. C. A. daily between 12 and 1 o'clock and at the other centers twice daily with moving pictures and stereopticon views.

INDIANA

Free Clinic.—A free clinic for the examination and treatment of tuberculosis patients has been established in New Albany by the Floyd County Medical Society, Anti-Tuberculosis League and Social Welfare Association. The opening of the clinic took place on March 8, and it will be open on Monday, Wednesday and Friday mornings from 9 to 10 o'clock.

Personal.—The office of Dr. Franklin F. Mendenhall, Elwood, was robbed March 10, the robbers limiting their depredations to narcotic drugs only.——Dr. Carlos C. Rozeile, La Grange, has been elected president and Dr. Amos J. Hostetler, La Grange, secretary of the La Grange County Anti-Tuberculosis Society at its meeting February 26.——Dr. John N. Hurty, Indianapolis, was elected president and Dr. William F. King, Indianapolis, secretary-treasurer of the Indianapolis Sanitary Water Supply Association at its eighth annual meeting in Indianapolis, February 25.——Dr. Clarence G. Rea has succeeded Dr. Noah D. Berry, resigned, as secretary of the Muncie Board of Health.——Dr. Forrest A. Chenoweth, Winchester, fractured two ribs while cranking his automobile recently.

Honor Hurty.—The most notable assembly of physicians in Indiana for many years was at the Claypool Hôtel, Indianapolis, March 13, in honor of the nineteenth anniversary of the appointment of Dr. John N. Hurty as state health commissioner. Governor Samuel R. Ralston was the toastmaster. An address was made by Thomas R. Marshall, vice-president of the United States, who presented an elaborate vase to Dr. Hurty from his friends in the profession. Dr. Alexander R. Craig, secretary of the American Medical Association, Chicago, spoke on the "American Medical Association and Sanitation;" President William E. Stone of Purdue University, Lafayette, spoke on "Health a Great Asset of Life;" Dr. Victor C. Vaughan, Ann Arbor, Mich., president of the American Medical Association, on "The Well-Born Child and the State;" President William Lowe Bryan of Indiana University, Bloomington, on "Public Schools and Public Health;" Dr. William A. Evans, former health commissioner of Chicago, on "The Turbulent Life of the Health Officer;" Dr. George T. McCoy, Columbus, ex-president of the Indiana State Board of Health, on "Educational Work of the Health Officer and the Health Officers' School;" Dr. Frederic C. Heath, Indianapolis, gave an original poem, "The Life Saver." Mrs. Vida Newsom, president of the Indiana Federation Women's Clubs, Columbus, spoke of "The State Federation and Health Officers' Work." The final address was one of appreciation by Dr. Hurty himself. Several hundred physicians from Indiana and other states attended the banquet.

KENTUCKY

County Society Incorporated.—Articles of incorporation of the Warren County Medical Society were filed March 4, the incorporators being Drs. Will F. Arnold, Bowling Green; John H. Blackburn, Bowling Green; Frederick D. Cartwright, Bowling Green; James W. Lewis, Oakland; Finis London, Woodburn; Frederick D. Reardon, Bowling Green; Benjamin S. Rutherford, Bowling Green; Thomas W. Stone, Bowling Green, and Burnett W. Wright, Bowling Green; and E. D. Rose, D.D.S., and J. A. Wallace, V.S.

State Board Election.—At the annual meeting of the State Board of Health, February 16, the following officers were reelected: president, Dr. John G. South, Frankford; vice-president, Dr. Charles Z. Aud, Cecilia; secretary, Dr. Arthur T. McCormack, Bowling Green. Drs. South and Aud were appointed a committee to confer with the faculty of the University of Louisville and the Council on Medical Education of the American Medical Association, regarding preliminary requirements for medical students.——The state vaccination rule was so amended as to make it apply to employees of business concerns other than corporations.

Personal.—Dr. James V. Prewitt and daughter, West Point, March 2, were attacked by a bulldog supposed to be rabid, and are now under treatment at the State Pasteur Laboratory, Bowling Green.——On the occasion of his eighty-second birthday anniversary, March 2, Dr. Urbane V. Williams, Frankfort, was the guest of honor at a banquet given by medical men of Frankfort and Franklin County, at which 150 were present, and Dr. Louis Frank, Louisville, was toastmaster.——In the case of Dr. Charles E. Francis, Richardsville, and John H. Blackburn, Bowling Green, against whom suit for $10,000 for alleged malpractice was brought by J. J. Miller and Mrs. Carrie Miller, Richardsville, a verdict was rendered in favor of the defendants, February 24.

Hospital News.—For the benefit of the Jennie Casseday Rest Cottage, Louisville, a playlet, "Wang May, China's Peach Blossom," was given twice in Louisville recently. The playlet was written by Dr. John D. Trawick, who spent several years in China as a medical missionary, and who also took part in the play.——A hospital is to be established in Jackson, with a capital stock of $5,000. Its support will be largely derived from the Chesapeake and Ohio Railway Company and the local companies.——The Red Cross Hospital for Colored People, Louisville, was formally opened, February 15.——During the first year of the occupancy of the new buildings of the Louisville City Hospital, 5,093 patients were treated.——Citizens of Menifee County have started a fund to erect a hospital at Frenchburg, for which about $15,000 will be required.

LOUISIANA

Dr. Dowling Becomes a Benedict.—Dr. Oscar Dowling, president of the State Board of Health, was married March 16, to Mrs. Lula Tindall George at Monroe. Dr. and Mrs. Dowling are spending a few days in Monroe and will then be on the health train for its next tour. Their permanent home will be in Shreveport.

The New Sickles Fund Commission.—For the lack of a quorum, what should have been the last meeting of the Sickles Fund Commission was not held February 23. The ordinance providing for a new commission, to be composed of Commissioner of Public Safety Newman, Dr. William T. O'Reilly, superintendent of public health in New Orleans, and a physician to be named by the mayor, was adopted, February 9, but the mayor has not yet made his nomination.

Personal.—The notice in The Journal of February 27, that Dr. Sydney D. Porter, New Orleans, had been made secretary of the State Board of Health was incorrect. At a recent meeting of the board, Dr. Porter was made medical inspector, and since that time he has resigned to enter private practice.——Asst. Surgs. Julian M. Gillespie and Charles L. Williams, U. S. P. H. S., were seriously injured in a collision between their automobile and a street car in New Orleans, February 17.

MARYLAND

Personal.—Dr. Samuel C. Chew, one of the oldest and best known physicians of Baltimore, is ill at his home, Roland Park. He has been gradually failing for a year, his impaired health being due to the infirmities of age.——Dr. William H. Welch, Baltimore, has been appointed a member of the China Medical Board of the Rockefeller Foundation, the object of which is to raise the standards of medical education in China.

Night Clinics Planned.—The problem that confronts Baltimore working men and women who need hospital and medical treatment, but who can neither afford to pay for it, nor take time from their work to attend free clinics during the day, will likely be solved if the plans of Dr. Flora Pollack of the staff of the Johns Hopkins Medical School are carried out. Dr. Pollack has already arranged for the establishment of a community and recreation center in Highlandtown and for night clinics and a dispensary at that place. By the early summer it is hoped to have the clinic firmly established. Up to four years ago, Baltimore had free night clinics, but later they were discontinued. There are already twenty-four free day clinics and dispensaries, but they are comparatively useless so far as benefit to the working classes is concerned. It is Dr. Pollack's idea to have night clinics in all hospitals that receive state aid, but it is not her plan to establish night clinics in hospitals like the Johns Hopkins, as it would demoralize the highly organized systems of those places.

MASSACHUSETTS

In Health Department Service More than Half a Century.—Morris Benjamin Rowe, who had been in the service of the Boston Health Department for fifty-six years under twenty-eight different administrations, died at his home in Roxbury, Boston, March 1, aged 82.

Personal.—Dr. Allen J. McLaughlin, state commissioner of health, has been asked by the American Red Cross and the Rockefeller Foundation, to go to Servia to take charge of the campaign against typhus fever and cholera.——Dr. and Mrs. L. I. Chandler Walker, Boston, have sailed for Europe where they have volunteered for service at a new hospital to be established at Chateau Passy near Sens, France.

Health Commissioner Answers Criticism.—State Health Commissioner Allen J. McLaughlin, who has been criticized for failing to appoint three members of the department in the appointment of eight district health officers, has sent a statement to the governor in which he explains that there were ten candidates from old positions in the competitive examination to fill eight places, and each was given the maximum number of points for experience. The single applicant appointed outside of the persons in office, although he possessed the degree of Doctor of Public Health and had had a great deal of experience in public health work, was given only 75 per cent. of the points for experience. With these he finished third on the general average with a percentage of 11.4 higher than the old inspectors who were eliminated.

MINNESOTA

Personal.—Dr. Frank F. Wesbrook, formerly dean of the School of Medicine of the University of Minnesota, and now president of the University of British Columbia, has been commissioned as lieutenant in the Canadian Army Medical Corps, and is preparing for service abroad.——Dr. Pearl M. Hall, Minneapolis, is reported to be seriously ill with septicemia due to an infected finger.——Dr. Jacob H. Stewart, St. Paul, is reported to be seriously ill with neuritis in the city hospital.

Hospital News.—The Physicians' Hospital Company has been organized at Thief River Falls, with a capital stock of $25,000. The object of the corporation is to construct, equip and maintain a hospital, and the officers of the association are: Dr. Jesse E. Douglass, Thief River Falls, president; Dr. Oscar F. Melby, Thief River Falls, vice-president; Dr. Herman W. Froehlich, Crosby, secretary; and Dr. Francis H. Gambell, Thief River Falls, treasurer; and Dr. Harvey G. Hieber, Thief River Falls, director.——A new hospital, 40x66 feet, with accommodations for fifteen patients, was recently opened at Braham.——The United Churches Hospital Association of Minneapolis has secured a permit for the erection of the Fairview Hospital at Twenty-Third Avenue and Sixth Street South, to cost $75,000, and to be completed by August 1. The building will be of tile, brick and concrete construction and four stories in height.——Plans are being prepared for improvements at St. Luke's Hospital, St. Paul, which include a five-story addition to the ward building to cost $80,000 and a chapel to cost about $30,000.

Detecting Infectious Diseases.—Under a plan of recent adoption by the health board of Minnesota of supervision of epidemics by quiet investigation, about 48,000 cases of infectious disease were discovered in 1913 and 1914, as against 16,000 in 1911 and 1912. About 300 investigations were made in 1914, involving 45,000 miles of travel. The number of cases found probably did not exceed the number existing during previous years, but the investigations disclosed them, and by this means their spread was prevented. This work cost the state $17,000 in 1914, but undoubtedly saved the citizens many more thousands in the way of prevention. Of the investigations made, sixty-six related to tuberculosis, seventy to typhoid fever and 157 to diphtheria, scarlet fever, smallpox and other infectious diseases. The board has evolved a successful plan of controlling epidemics in the schools without closing them, which constitutes an important economic advance.——At present sixteen sanatoriums have been established or are under construction for the care and treatment of persons with tuberculosis. They are distributed among twenty-nine different counties. Those for St. Louis, Ottertail and Ramsey counties are now treating patients.

NEW JERSEY

Personal.—Dr. James M. Reese, Phillipsburg, has been elected president and Dr. Floyd A. first vice-president, of the Tuberculosis Society of Phillipsburg.——Dr. Joseph Bellas, Montclair, is ill with diphtheria in the Essex County Isolation Hospital.——Dr. William S. Disbrow has been elected president of the Newark Board of Health.

Memorial to Francis.—A fund of $1,000 is being raised in Montclair to establish a memorial to the late Dr. Richard Pierce Francis, formerly chief of the staff of the Mountainside Hospital, who was killed two years ago in an automobile accident. The fund is to be used to equip the men's ward of the new hospital building, and it is also proposed that the ward shall bear the name of Dr. Francis.

NEW YORK

Conference and Exhibit on Mental Hygiene.—The first state conference and exhibit on mental hygiene will be held in Albany on March 23, 24 and 25, under the auspices of the mental hygiene committee of the State Charities' Aid Association.

Personal.—Dr. Robert J. Talbot, Niagara Falls, fractured his right arm while cranking his automobile, March 6.——Dr. John P. Faber was reelected president of the Schenectady Committee on the Prevention of Tuberculosis of the State Charities' Aid Association at its meeting, March 5.

Hoof and Mouth Disease in Westchester.—Westchester County has been placed under quarantine because of an outbreak of the hoof and mouth disease among a number of herds of cattle. On March 11, 146 cattle were shot and it was stated that 400 would be destroyed the following day. The herds of Westchester County are mostly on the estates of very wealthy men and have among them some of the most valuable cattle in this country. The orders have gone out that cats, dogs, pigeons and birds shall also be destroyed in the infected area. Employees have been put under quarantine until the infected cattle shall have been destroyed.

New York City

Personal.—Dr. Israel L. Feinberg, president of the Manhattan Board of Coroners, is ill with pneumonia at his home.——Dr. Cecil MacCoy, Brooklyn, after fifteen years of active service, as visiting physician at the King's County Hospital, has resigned.

Postgraduate Course in Infectious Diseases.—Through the cooperation of the medical board of the Willard Parker Hospital, the bureau of hospitals and the bureau of laboratories with the department of health, a course of clinical lectures and demonstrations in the contagious and infectious diseases has been inaugurated for the benefit of practicing physicians. There are no fees. The first course began March 2. Applications from graduates of numerous colleges in this country and abroad have already been received. A schedule of the courses is printed in the *Weekly Bulletin* of the Department of Health, March 6, 1915.

Legal Decision Upholds Health Department.—Justice Lehman of the supreme court has just rendered an important legal decision upholding the right of the department of health of this city to enact and enforce an ordinance providing for the muzzling of all dogs in the streets and other public places of this city. The department of health holds that the muzzling of dogs is only a part of the campaign against rabies. It is equally important that stray cats and dogs should be destroyed. During the year 1914 the Society for the Prevention of Cruelty to Animals destroyed 18,510 dogs and 49,940 cats. The Bulletin of the health department shows that there has been a falling off in the number of dog bites and also a decrease in the number of cases of rabies in this city during the past six months.

Blood Tests in Public Schools.—As a part of the Gary system of education which is being tried in two of the public schools of the Flatbush district of Brooklyn, tests of the pupils' blood are being made as a means of determining whether the pupils are well nourished. The local newspapers have charged that parents objected to this but Dr. C. Ward G. Crampton, director of physical training in the public schools, denies these reports and states that no blood tests are made without the permission of the parents and that there has been no complaint whatever. In these schools the experiment is being tried of dividing the pupils into two sections, one being sent to the play grounds while the other is in the class rooms. It is stated that the pupils advance more rapidly by this system than when they spend a longer time in the classroom.

Overcrowded Cars as a Health Menace.—Mayor Mitchell recently addressed a communication to Commissioner of Health Goldwater concerning the authority of the department to demand less overcrowding of cars on the ground that such overcrowding is a menace to the health of passengers and a nuisance which should be abated. The mayor cites as authority Section 1176 of the city charter which provides that "Whenever any business pursuit shall, in the opinion of the Board of Health, be in a condition or in effect dangerous to life or health, said board may enter in its records the same as a nuisance, and order the same to be removed, abated, suspended or improved." The mayor says that the health department has shown that overcrowding is a menace to health, and on proper representation of this fact he believes the courts would sustain the contention. It was therefore ordered that the surface lines so regulate the number of cars employed that the number of passengers on any car at any time shall not exceed one and one-half times the seating capacity of the car.

NORTH CAROLINA

Work Started on Mission Hospital.—Work has been started on the addition to the Mission Hospital, Asheville, which is to be erected at a cost of about $50,000; will accommodate thirty-three patients and will be ready for occupancy in August.

Personal.—The work of Dr. J. Howell Way, Waynesville, president of the State Board of Health, was given an extended notice in the New York *Tribune* of February 28. The thoroughness and effectiveness of the work of the board received especial praise in the article.——Dr. Paul B. Means, Concord, has been appointed assistant physician in the New Jersey State Hospital for Nervous Diseases, Skillman.

Gubernatorial Appointments.—The governor of North Carolina has appointed the following physicians as trustees: State Hospital Insane, Raleigh, Dr. Thomas W. M. Long, Roanoke Rapids; State Hospital Insane, Morgantown, Dr. Lucius N. Glenn, Gastonia; State Hospital Insane, Goldsboro, Dr. J. G. Anderson, Greene County, and Dr. John T. Hoggard, Atkinson, and State Normal College for Women, Greensboro, Dr. Thomas S. McMullan, Hertford.

Clinical Congrees Meets.—The Seventh District Clinical Congress, a subdivision of the work of the Seventh District Medical Society, which was organized five years ago by the then councilor of the district, Dr. A. J. Crowell, Charlotte, was held in Charlotte, March 8 and 9, with a goodly attendance of visitors present. Medical and surgical clinics were given at the Charlotte Sanitarium, St. Peter's Hospital, The Mercy General Hospital, and at the Presbyterian Hospital. The occasion brought together a number of the best clinical workers of the district and the time was most profitably spent.

PENNSYLVANIA

Freak Legislation Regarding Vaccination.—It is reported from Harrisburg that Representative Horace W. Cromer of Allegany, March 9 introduced a bill into the state legislature seeking to prohibit vaccination for small-pox and fixing a fine of $500 or imprisonment for six months as the penalty.

Personal.—Dr. Walter Lathrop of the State Hospital, Hazleton, was operated on in a hospital in New York City, recently.——Dr. J. Thomas Quincy, Norristown, is said to have been the victim of a swindle amounting to $50 at the hands of a magazine agent who presented a check drawn to the order of Thomas J. Armstrong and certified by the West Jersey National Bank. This check the agent induced Dr. Quincy to indorse.——Dr. Elliott E. Phillips, Gouldsboro, is ill at his home with typhoid fever.——Dr. Francis H. Brobst, Reading, is reported to be seriously ill with septicemia.——Dr. Edwin R. Van der Slice, Mount Alto, has been appointed superintendent of the Hospital for Tuberculosis of the state of Nebraska, Carney.——Dr. Samuel C. Jaspan has resigned from the staff of the State Sanatorium and has located in Trenton, N. J.——Dr. Nellie De Hay-Hunan, Blue Ridge Summit, is in India but expects soon to return home.——Dr. Alexander L. Gillars, Pottsville, was seriously injured March 3, by a fall while getting over a stile.——Dr. Walter McNeal, Nanticoke, was operated on for appendicitis at the Nanticoke State Hospital, March 3, and is reported to be doing well.

Philadelphia

New Scholarships to Thirteen.—During the present session, thirteen students of the Woman's Medical College of Pennsylvania, Philadelphia, were granted scholarships ranging in value from $100 to full tuition, $175. Next year it is reported, an additional sum of $6,500 will be available for this purpose.

Drug Users at Byberry.—By opening one of the new buildings at Byberry, March 8, Dr. Ziegler, director of the Department of Health and Charity, provided more room for the treatment of drug users. Twenty-five patients at the Philadelphia Hospital were removed to Byberry. Until the transfer was made there were ninety-one such cases at the Philadelphia Hospital. Of this number twenty-six are women.

SOUTH CAROLINA

State Health Board Appointments.—The governor has made the following appointments: state health officer, Dr. James A. Hayne, Columbia; members of the executive committee, Drs. Robert Wilson, Jr., Charleston; David B. Frontis, Ridge Spring; Claude C. Gambrill, Abbeville; William J. Burdell, Lugoff; Edgar A. Hines, Seneca; William M. Lester, Columbia; William Egleston, Hartsville, and William W. Dodson, Ph.G., Greenville.

Superintendent to be Named.—At the annual meeting of the executive committee of the State Board of Health of South Carolina, to be held at Greenwood, April 20, there will be an election for the position of medical superintendent of the State Tuberculosis Hospital, to be opened at State Park, near Columbia. Salary, $1,500 per annum, fuel, lights and board. A married man preferred. Applicants must state age, previous experience, college and year of graduation and such other facts as they deem pertinent. Applications should be addressed to James A. Hayne, Secretary, State Board of Health, Columbia, S. C.

WISCONSIN

Sanatorium Notes.—The State Board of Control has sanctioned the plans for a new Kenosha tuberculosis sanatorium, and bids will be asked for early next month.——Winnebago County has recently completed its tuberculosis sanatorium.

CANADA

Health Official Dies.—Edward W. Hilton, for eighteen years a member of the health office staff of Toronto and chief of the municipal disinfecting department, died in the Toronto General Hospital, March 6, from malignant disease, aged 50.

Tuberculosis Clinic at St. Johns.—Dr. David Townsend, superintendent of the Jordan Memorial Sanatorium, River Glade, N. B., conducted a tuberculosis clinic at St. Johns, N. B., March 4, and will hereafter visit St. Johns for this purpose on the first Thursday of every month. The sanatorium has at present twenty-five patients, its capacity being thirty.

Cerebrospinal Meningitis in Toronto.—The small outbreak of cerebrospinal meningitis among some 4,500 men in camp in Toronto who will form part of the Second Canadian Overseas Force, is now said to be well in hand. It is supposed to have originated among the mess orderlies, and a recent examination of some 150 of these for meningitis germs gave negative results in all cases. Some fifty-seven soldiers who are said to be carriers have been isolated in the old Toronto General Hospital. There have been two or three deaths from about a dozen cases.

University Volunteers.—Arrangements have been made by the Canadian Militia Department for hospital corps to go with the second and third Canadian contingents from the universities of Toronto, McGill, Queen's and Laval. Among the Toronto men who have volunteered are Drs. Irving H. Cameron, George A. Bingham, Alexander Primrose, Frederick N. G. Starr, P. Walter H. McKeown, William J. O. Malloch, Clarence L. Starr, Graham Chambers, Harry B.

Anderson, Robert J. Dwyer, E. Stanley Ryerson, John A. McCollum and Herbert A. Bruce.

Hospital News.—The large house, known as Valleyview Villa, St. Thomas, Ont., which was recently purchased by the Catholics of that city for hospital purposes, was destroyed by fire, March 11.——Orders have been received in Montreal for the immediate mobilization of the French-Canadian Stationary Hospital, for overseas service, under command of Lieut.-Col. A. E. Mignault, M.D.——Hospital abuse is said to be rampant in connection with the new Toronto General Hospital. Superintendent Clarke and the drivers of the ambulances state that the city gives orders for free treatment to many patients who are well able to pay for their maintenance.

GENERAL

Examination of Oyster Beds.—The steamer *W. D. Bratton* of the U. S. P. H. Service is on duty in connection with the sanitary examination of oyster beds and oyster-bearing water in the Chesapeake Bay and tributaries.

Safety First Federation.—The Safety First Federation of America was organized in New York, February 25, eighteen states being represented. The work of the federation is the coordination of the work of many public safety bodies into a strong national organization through which local activities may be expedited and extended.

Model Hospital Displayed.—Among the interesting exhibits of the Panama-Pacific Exposition, San Francisco, is a thoroughly equipped emergency hospital conducted as a working exhibit by the United States Public Health Service. Surgeon Rell M. Woodward is in charge with two service assistants and two civilian physicians and in addition there are six nurses on duty.

Diphtheria Aid for Mexico.—The American National Red Cross in response to appeals for medical assistance received from Dr. Herbert E. Stevenson, chairman of the El Paso chapter has forwarded by express from St. Louis and New Orleans, 2,000,000 units of diphtheria antitoxin to be used in the vicinity of Neoqui, Chihuahua, where there are reported to be 300 cases of diphtheria.

Subscription Swindlers at Work in Pennsylvania.—Notice has come to The Journal that one or more subscription swindlers are working in Pennsylvania and Ohio, claiming to represent The Journal of the American Medical Association, and collecting money for subscriptions. Readers are warned not to pay money to any solicitor without first assuring themselves that he is properly authorized. See Advertising Page 20, under "Warning."

Anesthetists to Meet.—The Interstate Association of Anesthetists will hold its meeting for organization in conjunction with that of the Ohio State Medical Association, Cincinnati, May 4 and 5, with headquarters at the Hotel Gibson. An informal organization dinner is to be served on the first evening followed by a smoker provided by the local entertainment committee of the Cincinnati Academy of Medicine. An attractive program has been prepared and anesthetists are invited to attend. Dr. F. Hoeffer McMechan, 1044 Wesley Avenue, Cincinnati, is secretary of the association.

Bequests and Donations.—The following bequests and donations have recently been announced:

Boston Floating Hospital, $10,000; Vincent Memorial Hospital, Boston, one-quarter of the residue of the estate after the payment of bequests, by the will of William H. Story, South Boston.

Howard Hospital, Philadelphia, $25,000 by the will of Edward Smith Kelly.

St. Timothy's and Episcopal hospitals, Philadelphia, $1,000 each by the will of Dr. John L. Brumley.

University Hospital and Philadelphia Home for Incurables, equal parts of a contingent bequest of the estate of the late Mary Rushton, valued at $135,000.

Bogus Index Association Operating Among Physicians.—Attention has been called in previous issues of The Journal to a concern with the high sounding name, The American Bureau of Medical Research, with headquarters at Indianapolis, which was attempting to solicit subscriptions from physicians at $5 each, for which sum it promised to send a reprint of any article published in medical literature. A similar plan on a much larger scale has recently operated in New Orleans. This was entitled the American Medical Index Association. Its activities extended over Texas, Alabama and Ohio, the chief of the concern signing himself Dr. C. A. Beck. Dr. Rudolph Matas informs us by telegram that this individual was last heard of at Youngsville, Ohio, where he forged a check, signing the name of Dr. Matas. The American Medical Index Association rented rooms in a large office building in New Orleans, these were elaborately furnished, and a number of solicitors were put to work canvassing physicians. These solicitors used the name of Dr. Matas as endorsement. On February 27 it was reported that the concern had abandoned its office, removing everything from it and leaving a number of solicitors—mostly girls—in the lurch, owing them salaries for their work. This American Medical Index Association solicited contracts at $10 a year, for which it promised to give members a monthly index, from which to order reprints, with no additional charges for sending the reprints except 10 cents postage. The number of journals from which it was claimed the index was composed included practically every scientific journal in the United States. Here again is an obviously impossible scheme, and yet numerous physicians are said to have subscribed. Physicians are warned once more not to pay money to any solicitor for any purpose whatever, unless he can present proper credentials. In all cases make checks payable to the firm and not to the individual solicitor.

FOREIGN

Foot and Mouth Disease in Sweden.—Private correspondence from Sweden, according to the Bertrand (Neb.) *Herald*, indicates that foot and mouth disease is prevalent in sections of that country to a serious extent and is crippling the dairy industry. Herds numbering 200 have been killed and on farms where infection is found every domestic animal except the horses are ordered killed.

Honors for Cortezo of Spain.—Carlos M. Cortezo, one of the four members of the editorial staff of the *Siglo Medico* of Madrid, senator, and member of the royal cabinet, was recently elected president of the Academia de Medicina and at the same time of the Union Medica Nacional. He was instrumental in the recent passage of a law pensioning physicians incapacitated by their work during epidemics and their dependents. He also aided in the organization of the national board of public health and was its first president. A banquet was tendered him the day he assumed the president's chair at the Academy of Medicine, a day which also inaugurated the new building of the academy—another achievement credited mainly to him. The *Siglo Medico* describes the event merely by quoting the long accounts published in the daily papers of Madrid and elsewhere. Over 6,000 persons or corporations, medical and otherwise throughout the country sent in a word or letter of greeting to join the "Homenaje al Doctor Cortezo." In the following *Siglo Medico* he published a letter "To the Physicians of Spain" in which he said that the remarkable tribute just rendered to him by the state, the public and scientific organizations was not meant for him personally but was a tribute to the medical profession as a whole which he happened, at the moment, to represent. "It was merely," he adds, "a pretext for honoring the medical men throughout the country, a pretext for the public to express its appreciation of what the medical profession is and what it signifies in modern society. Thus I explain what you call my Homenaje; it was placed in my hands only to hand it over to the physicians of Spain."

WAR NOTES

Funds for War Relief.—The Cheyenne (Wyo.) Chapter of the American Red Cross, one of the newest chapters, has raised for European war relief, $4,507.24 by the sale of Red Cross flags.

New Hospital.—A special hospital for wounded soldiers whose cases require delicate surgical operations has been opened at Compiègne, France, under the direction of Dr. Alexis Carrel of New York City.

Personal.—Dr. Charles S. Pancoast, Camden, N. J., on duty with the Austrian Red Cross, has reached his post of duty in Budapest.——Dr. Norman V. Leslie, Hamilton, Ont., on duty with the expeditionary force in France, is reported to be ill with diphtheria.

Red Cross Units for Belgium.—As the result of correspondence between the American Red Cross and Dr. DePage, surgeon in chief of the Belgian Red Cross, the American Red Cross has decided to send two fully equipped hospital units, each consisting of three surgeons and twelve nurses, for work with the Belgian army.

Physicians Go to War.—It is reported that fourteen medical men have entered the British service from Manitoba alone, and that seven of these are already on duty with the expeditionary force in France.——Sixteen members of the fourth-year medical class of the University of Toronto, who have volunteered to join the clearing hospital of the second contingent, were given a banquet, March 5.

Harvard Unit Starts for Paris.—On March 17 the Harvard unit for service in the American Ambulance Hospital, Paris, sailed for Europe, via the Mediterranean. This unit is in charge of Dr. Harvey Cushing, as head surgeon, and Dr. Robert B. Greenough, as executive officer. The other members of the party are Drs. Richard P. Strong, Robert B. Osgood, Beth Vincent, Walter M. Boothby, Frederick A. Coller, Elliott C. Cutler, Philip D. Wilson, Marius N. Smith-Peterson, Lyman G. Barton, Jr., Orville F. Rogers, Jr., George Benet, together with four operating-room nurses. This unit will relieve the medical men and nurses from the Western Reserve Medical School, Cleveland, whose assignment ends March 31.

Aid for Belgian Physicians.—The work of the American committee has been such that practically every Belgian civilian has received some share of the food supplies being distributed. The report of the treasurer for the week ending March 13, 1915, lists the following contributions:

Dr. Frank Slopansky, Helper, Utah		$ 5.00
McKees Rocks Medical Society, McKees Rocks, Pa		6.50
Dr. James Anders, Philadelphia, Pa		15.00
Dr. Charles M. Green, Boston, Mass		25.00
Dr. J. M. Miller, Hickory, Pa		5.00
Dr. John Woodman, New York, N. Y		10.00
Dr. R. L. Bradley, Roswell, New Mexico		5.00
Dr. Everett D. Peak, T [illegible]		25.00
Dr. Charles L. Minor, [illegible]		15.00
J. M. H., Ft. Logan H. [illegible]		5.00
Dr. Fred E. Thompson [illegible]		25.00
Dr. Alfred H. Tickell, Nevada City, Cal		2.00
Dr. Z. H. McClanahan, Colorado Springs, Colo		5.00
Dr. C. Dunbar Roy, Atlanta, Ga		5.00
Hempstead Academy of Medicine, Portsmouth, Ohio		10.00
Dr. Halsey Beach Loder, Boston, Mass		5.00
Dr. and Mrs. James R. Judd, Honolulu, Hawaii		25.00
Dr. Hugh T. Patrick, Chicago, Ill		25.00
Receipts for week ending March 13		$ 218.50
Previously reported receipts		4,611.50
Total receipts		$ 4,830.00
Previously reported disbursements	$4,614.60	
Disbursements week ending March 13, 90 boxes at $2.30	207.00	
Total disbursements	$4,821.60	4,830.00
Balance		$8.40

F. F. Simpson, M.D., Treasurer.
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Red Cross Needs.—The American Red Cross announces that there is special need of sheets and pillow cases and towels for use in the hospitals in Europe. These supplies should be addressed to the American Red Cross, Bush Terminal Number 19, Brooklyn, with boxes marked distinctly as to contents.——The American Red Cross has shipped by the transatlantic steamer *Chicago* from New York, 354 boxes, cases and bales of hospital supplies, including 22,000 pounds of absorbent cotton, 1,000 pounds of chloroform and several thousand pounds of bandages and yards of gauze and several barrels of iodin. This consignment is being sent to Paris.——By the Atlantic Transport Line steamer *Samland*, which sailed from New York, March 7, 97 large boxes of medical and surgical supplies for the British Red Cross were transported, consigned to Sir William Garstin, chief of the stores department of the organization.——The American Red Cross has sent 212 packages of hospital supplies by the Scandinavian-American steamer *California* for the use of the German Red Cross, addressed in care of the United States Consul at Copenhagen. By the same vessel, 63 packages of hospital supplies are being taken to the Red Cross Hospital in Munich.——By the steamer *Georgias* of the Hellenic Transportation Company, the American Red Cross has transported 206 boxes of supplies to the Servian Red Cross at Nish, Servia, and 105 cases of hospital supplies and clothing to Dr. Ethan Flagg Butler, surgical director of the American Red Cross work at Gevgalia, Servia.

BERLIN LETTER

Berlin, Feb. 16, 1915.

Personal

A victim of the war, Professor Neuhauss of Berlin died at his home at the age of 59. Neuhauss, noted for his numerous journeys for anthropologic investigation and study and his successful work in the field of color photography, undertook, a few weeks ago, the conduct of a diphtheria barracks in the hospital at Lichterfeld and there became infected. He succumbed after a few days to diphtheria. Soon after he was licensed as physician, he made a journey around the world. Later he was, for a time, assistant at the Bethany Hospital in this city. Then the wanderlust seized him again, and he made a voyage to the South Sea, and six years ago another one to German New Guinea. The latter, in which he discovered the pygmies, he has described in a large three-volume work. He was one of the first to produce colored photographs. His later studies in the field of anthropology concerned the genuineness of the alleged Schiller's skull found by the Tübingen anatomist, von Froriep, at Weimar, which he discredited in favor of the skull which was placed in the princely tomb.

February 10, the senior of the faculty of Kiel, the well-known physiologist, Professor Hansen, celebrated his eightieth birthday.

The War

THE NUTRITION QUESTION

The control of the distribution of bread and flour has been carried out in Berlin by the distribution of bread checks. Each family receives a card corresponding to the number of members, which contains directions for small quantities of flour and rolls and bread of definite weight. The individual rations are furnished by the separation of coupons which indicate the respective quantities. The removal of the corresponding coupon is always made by the baker or flour dealer. The family receive a supply only so long as their card contains coupons, and, on the other hand, the bakers and flour dealers receive from the authorities only so much flour or bakery goods as corresponds to the sum of the coupons presented by them. In details, this arrangement naturally presents difficulties in carrying it out, in spite of the special directions which are provided for hotels, boarding houses, restaurants and hospitals, but in consequence of the adaptability of our people, and particularly in view of their good disposition to persevere under all circumstances, this measure will probably succeed. From the standpoint of nutrition, those whom we have to care for are received, naturally, with very little satisfaction. In the German prisoners' camps there were, at the end of December, 310,000 Russian prisoners, and since that time the number has increased at least 70,000. There were at the end of December, 220,000 French prisoners, 38,000 Belgians, 20,000 British, white and colored. We will naturally fulfil the duty of humanity, and, in spite of the limitation of our food by England, will nourish our captured enemies as well as possible.

MILITARY STATISTICS OF THE WAR

The Prussian general staff has presented calculations for the last Russo-Japanese war and the Franco-Prussian war. The statistics of losses are as follows:

In 1870-1871 there were eighteen great battles, with forty days of battle and five engagements of the larger class and 228 of a smaller. In 1904-1905 there were four great battles, with twenty-seven days of battle and six larger and thirty-seven smaller engagements. If we calculate first the losses in battle of those killed and wounded, there was, on the side of the Russians, a total loss of 135,000 and on that of the Japanese 146,000; in the case of the Germans, 82,500. Reckoned on the basis of the total numbers engaged, there was an average loss per individual battle, according to Schwiening, for the Russians, 16.7 per cent.; for the Japanese, 20.4; for the Germans, 7. The individual day of battle demanded, in the Russo-Japanese war, a proportionately very much smaller sacrifice than in the years 1870-1871, but the losses in Manchuria were very disproportionately distributed according to the individual days of battle. According to this, the general staff believes that it is justified in supposing that the battles of the eastern Asiatic war were more bloody than those of the war of 1870-1871, not only in consequence of the long continuance of the battle, but also as a result of the improved action of weapons, which is also the occasion for the great duration of modern battles. The proportion of those who died of diseases and wounds to the number of those treated for diseases and wounds is of interest. In the Crimean war, for instance, 12.2 per cent. of all the sick among the English died; among the French, 16.4 per cent. In the Franco-Prussian war the proportion was only 3.1. In the Manchurian war among the Russians, the figure was only 2.1, but among the Japanese it was 8.1. With reference to the percentage relation of those who died from wounds in the course of the decade, a marked improvement is to be noted. For instance: of 100 wounded in the Crimean war, 24.9 died; in the Italian war, 17.3 per cent. died; in the war of 1864, among the Prussians, 15.5; in the campaign of 1870-1871, among the Germans, 11.1; in the Spanish-American War, 7.6; finally in the last war among the Japanese, 6.8; among the Russians, 3.2. This is a striking evidence of the progress in military surgery in war.

PARIS LETTER

Paris, Feb. 25, 1915.

The War

ORGANIZATION OF CENTERS FOR SPECIALIST TREATMENT FOR WOUNDED SOLDIERS

Since the beginning of the war the direction of the war department health service has been making an effort to utilize abilities to the best advantage, and has organized in each of the military regions (France is divided into twenty-one military regions, not including the military government of Paris) special services of neurology (traumatic lesions of the nervous system), physiotherapy, ophthalmology, oto-rhinolaryngology, orthopedics, psychiatry and maxillary-facial prothesis. For each specialty in each region a central service has been established and secondary services placed in various cities selected so that the soldiers can easily be taken there. At the head of each of these services has been placed a regional head of the service who has a threefold duty: (1) to treat the patients placed in the central service; (2) to visit on tours of inspection the various hospitals of the region and to select the patients suitable for treatment in the central or secondary services; (3) to collect scientific and practical data which come to light during the working of the various special centers of the region. Every month he is to sum up the data which seem to him the most interesting and, adding the results of his personal practice, to communicate them on the one hand to the administration of the war department health service and on the other, to the heads of the organizations of the same specialty in the other regions.

It is particularly recommended that the physicians of the various sanitary formations shall, as promptly as possible, send to the large centers where these medicosurgical specialties are established all the wounded patients who are suitable for special treatment.

THE WAR AND THE PROTECTION OF CHILDREN

During a conference held at the Musée Social, Dr. Pinard, former professor of clinical obstetrics at the Faculté de médecine de Paris, explained in detail the measures taken throughout the extent of the military government of Paris since the outbreak of war to protect pregnant women and young children. At the beginning of the mobilization delegates were sent to the *mairies* and the maternity hospitals. There every pregnant woman was interrogated. Food, lodging and medical attention were assured to her. Every woman, after her lying in, was enabled to finish her convalescence under the best conditions whether in suburban establishments of the Assistance publique, or in private institutions. Six hundred and fifty beds were put at the disposition of the central office of maternal assistance.

Measures were taken, moreover, to assure the milk supply of Paris (The Journal, Jan. 23, 1915, p. 356). All allied organizations lent their aid: the Abri Maternel, the Cantines Maternelles, the Charité Maternelle and the Assistance Publique.

The results of these efforts were excellent. During the last five months of 1914 there were in Paris 16,579 births, of which 12,203 took place in maternity hospitals. The maternal mortality was about 20 per cent. less than that of the same period in 1913 and the infant mortality was 30 per cent. less. The number of infants abandoned by their mothers was less by about half. It may also be said that the infants of 1914 are superior to those of previous years. Their weight, which averages 15 per cent. higher than that of the infants of previous years, proves this incontestably. Results such as these, obtained during a period of distress and trouble, show what can be done in the future during peace and ordinary industry for the future of the race.

The Defects of Ventilating Fans

It is well known that the use of ventilating fans in dwelling houses, shops, theaters, cafés, restaurants, etc., is subject to numerous inconveniences and great dangers. In the course of a paper read before the Société de biologie about five years ago which was much commented on at the time, Dr. Sartory, professor at the Ecole de pharmacie de Nancy, and Dr. Filassier, head of the Bureau of Statistics of the city of Paris, showed that ventilating fans ought to be considered as "diffusers par excellence of tuberculosis and influenza." The experiments which they carried out proved that, especially in cafés and restaurants, pathogenic germs stirred up about the feet of customers and employees were drawn up in the air to the height of the mouth and nose and absorbed in large numbers, first by the respiratory mechanism and in the second place along with food and drinks.

The Pasteur Institute has taken up the study of this question. One of the heads of service there, M. Trillat, has made long and minute experiments under the control of Professor Laveran, assistant director of the Pasteur Institute, which show that while the "dry dust" of dwellings has been with justice believed to be capable of conveying the tubercle bacillus "moist dust" is without doubt a vehicle for the most contagious germs such as those of scarlet fever, smallpox, influenza and varicella. Trillat has studied the effects of ventilating fans on microbian droplets within closed places such as sick rooms, hospital rooms, theaters, etc. He has ascertained that under the influence of the gyrating current of air in badly ventilated rooms, there are produced little whirlwinds which constitute zones where the microbes of the diseases most transmissible by air become amassed.

A New Treatment for Articular Effusion

At one of the last sessions of the Académie des sciences Dr. Raoul Bayeux of Paris reported a new method of treating hydrarthrosis and hemarthrosis of the knee. First, an evacuating puncture is made with a trocar, then oxygen under pressure of 70 cm. of water is aseptically injected into the joint. These injections are repeated every two or three days and five or six injections of the gas are generally sufficient to produce perfect cure.

LONDON LETTER

London, Feb. 26, 1915.

The War

A HOSPITAL FOR EMERGENCY CASES FOR THE FRENCH

Arrangements have been made in this country to supply the French with a hospital for emergency cases. The arrangements have received the approval of the Anglo-French Hospitals Committee, and the French military authorities have promised to provide a suitable building or buildings for sixty patients. The hospital will be placed about 50 miles behind the firing line and is especially designed for the treatment of urgent surgical cases among the French wounded between the firing line and the base hospitals. Promises have been received of five or six motor-cars and ambulances. The equipment will include provision for a complete theater; Roentgen-ray apparatus, with dynamo, which will also be used for electric lighting; beds and bedding for sixty patients; ward equipment; stores of dressings, anesthetics and drugs, and household stores. The staff will be entirely British and includes Mr. A. W. Mayo Robson, the well-known surgeon, who retired from practice a few years ago.

AN EMERGENCY SURGICAL SERVICE FOR AIR RAIDS

The possibility of further air raids has caused the members of the Royal Society of Medicine to organize, with the approval of the military and police authorities, a voluntary service of surgeons, assistants and anesthetists. On being called out, these are prepared to start for the east coast, or any part of the metropolitan area. The Royal Automobile Club has placed a fleet of cars at the disposal of the service, which will convey parties with their equipment free to any London district or, in case the railway should be blocked by military use, to the coast direct.

THE SHORTAGE OF MEDICAL OFFICERS OF INSTITUTIONS

The shortage of medical officers of institutions because of the great call of the profession from the army has been mentioned in previous letters. Its extent is illustrated by the fact that the secretary of the East London Hospital for Sick Children has made the following statement: "It is possible that there may be physicians who, if they knew of the difficulties under which hospitals are now laboring, would be willing to come into voluntary residence and help them during this temporary crisis. We have exhausted all the regular methods of obtaining resident physicians, and unless we can procure such help we shall be compelled to close a large part of the establishment, which at the present time would be a great calamity for the sick children."

SCHOOLS FOR MOTHERS

The losses of the war have increased the importance of the growing work done by the schools for mothers, both municipal and voluntary, and maternity centers. These institutions number about 500, and are being added to at the unprecedented rate of five or six a week. The establishment of medical inspection of schoolchildren in public elementary schools drew attention to the existence of ailments and defects due to mothers' ignorance of simple rules of health. Instruction at the schools for mothers include home visiting and infant consultations. The provision of specific medical and surgical advice and treatment (if any) is incidental, whereas at baby clinics treatment is given and instruction is only incidental. The instruction at the schools is simple and practical, in the care and management of infants and young children, domestic and personal hygiene, home nursing, sewing and cookery.

THE CONSERVATION OF THE PRACTICES OF PHYSICIANS WHO HAVE JOINED THE ARMY

The means adopted to conserve the practices of physicians who have temporarily abandoned their work in order to help their country have been referred to in previous letters. The subject has received a good deal of attention from a committee of the British Medical Association. At first it was tentatively decided that physicians should do the work of their absent colleagues without payment. The committee now thinks that in many cases some departure may be made from this arrangement and expresses approval of the proposals made by the Scottish Medical Emergency Committee, which classifies practices as follows: (1) large towns, where an equal division of all remuneration, both from private and insurance practice, would be equitable; (2) towns with a considerable population, but with a large amount of country work, where a division on the basis of three eighths to the absentee and five eighths to the man doing all the work and paying all the expenses would be nearest to equity, and (3) small centers, or single practice areas where traveling expenses and consumption of time are still more important factors, and where a division on the basis of one quarter to the absentee and three quarters to the man doing the work might be proper.

Outbreak of Cerebrospinal Fever: A Ban on Kissing

A serious outbreak of cerebrospinal fever has occured in various parts of England and Wales, and the number of cases so far reported amounts to 100. At the Crystal Palace, London, which has now been converted into a naval training school, as many as eight deaths have occurred. The government has issued a notice to health officers that any suspicious cases shall be isolated immediately, and "contacts" must be watched. To prevent infection it is declared that any person even slightly suspected as having contracted the disease should refrain from kissing, as the germs in the first place attack the throat. The advisability of inquiring into the circumstances of deaths recorded as due to tuberculous meningitis, meningitis or convulsions in districts where cerebrospinal fever is known to be present is impressed on health officers.

The Metric System and the New Pharmacopeia

In this country the metric system of weights and measures is little used outside scientific laboratories and in certain manufactures where delicate adjustment is necessary. It is seldom used by the physician, although the compilers of the British Pharmacopeia began to introduce it sixteen years ago with the issue of their last edition. Instructions for mixing were given for the first time alternately in avoirdupois and the metric system. In the present edition of the British Pharmacopeia, which came into force at the beginning of the present year, avoirdupois is omitted and the wholesale druggist must in future use the metric system in the mixing of drugs. But the doses of drugs are given alternately in the metric system and in the old system of apothecaries' weights. Medical students will therefore in future learn their prescribing under the two systems, and in time, no doubt, the more scientific will prevail. The complete adoption of the metric system may, however, be a matter of some years. Physicians now practicing are not likely to abandon their present methods, and it will only be as students, trained to the newer method, leave the schools for practices of their own, that dispensing chemists will be compelled to adapt themselves to the change. Even so, it will probably not be altogether concurrent with the turning out of young doctors, since many of them make their start in life as assistants to or partners with established practitioners and although prepared to prescribe according to either method, will probably follow the practice of their employer or established partner. Probably the change will come first in institutions, such as hospitals, lunatic asylums, poor law infirmaries, etc., in which the methods of the schools stand more chance of adoption, but however gradually the change will come about.

Association News

THE SAN FRANCISCO SESSION

Additional Northern Routes

Last week the most northern available route for the return trip from San Francisco was outlined. Three additional lines, from Portland, Tacoma or Seattle, are as follows:

Great Northern Railway

This route affords access to the Glacier National Park. The trip may be made directly from Portland to Spokane, or following the route already outlined, it may be by way of Tacoma and Seattle, then to Everett and eastward over the main line of the Great Northern to Spokane. In the direct route from Portland to Spokane, the course of the Columbia is followed for some 200 miles and thence through the canyon of the Snake River, until finally Spokane is reached. When the trip is through Tacoma and Seattle, by the Cascade Mountain and Puget Sound route, the train passes through the great Cascade tunnel, a wonder of engineering enterprise, 3½ miles in length, through which trains are handled by electric locomotives. In the center of the apple-bearing region, surrounded by the Cabinet and Coeur d'Alene ranges, lies Spokane in the western part of Washington, at which point these two routes join. Then the tracks follow the Pend Oreille, pass through the Kootenai Canyon through gold fields and by saw-mill towns, through the Cabinet Mountains, the Purcell and Wolfe ranges, over the 105-mile horseshoe of the Kootenai, across the "Panhandle" of Idaho, through the Tobacco Plains and Flathead Valley, and finally along the southern border of Glacier National Park.

GLACIER NATIONAL PARK

The park may be entered from the west at Belton. From one to thirty days may be devoted to touring it. The trip may be either a "hiking tour," on horseback or by automobile, stage and launch service. The following tours and rates are announced: One-day tour, $8.25; three-day tour, $21; five-day tour, $31.25; seven-day tour, $47.

From Belton, the trip may be made by auto to Apgars, from there by launch through Lake McDonald to the Lewis Hotel where the route may be varied in accordance with the pleasure of the visitor. Sperry Camp, Gunsight Camp, Going-to-the-sun Camp, Granite Park Camp, Many Glacier Camp, Cutbank Camp and Two Medicine Camp are all centers at which stops may be made or from which trips may be taken. The eastern entrance to the park is at Glacier Park Station where there is a large hotel. On the eastern boundary of the park is the Blackfeet Indian Reservation.

From Glacier Park Station the Great Northern passes across the states of Montana and North Dakota, through the Lake Park region of Minnesota to St. Paul and Minneapolis. Or, a connection may be made at Shelby, Mont., with a line going southeast through Billings (from which point the traveler may turn westward again and tour the Yellowstone Park), across the northwest portion of Wyoming, touching South Dakota and pass through Nebraska to Omaha, or to Kansas City.

Northern Pacific Railway

The Northern Pacific Railway leads to the northern entrance of the Yellowstone National Park, a direct connection from Portland reaching the Northern Pacific at Pasco or Spokane, or the route may include Tacoma and Seattle. Starting from either of these cities on the western slope of the Cascade range, the road follows the Green River to Stampede Pass where a 2-mile tunnel pierces the mountain. Then the Yakima River is followed from its source to Pasco, where the Columbia River is crossed. After leaving Spokane the train follows the northern shore of Lake Pend Oreille and the Cabinet Mountains are seen to the north with the Coeur d'Alene Mountains to the south; by the new Montana National Bison Range, through the Coriacan defile, skirting the reservation of the Flathead Indians into the Bitter Root Valley, noted for its scenery and agricultural interests. Then the route is along Hellgate River, across the Home-stake Pass. The main range of the Rocky Mountains is crossed at the Bozeman Tunnel, to Livingston where a branch line runs to Gardiner, the northern gateway of the Yellowstone National Park. Trunks may be stored at the railway station at Gardiner free of charge or arrangements may be made for having them hauled from Gardiner to the Mammoth Hot Springs.

The regular tour of the Yellowstone Park includes six days south of Livingston, the tourist being in the park proper for five and a half days. This time is necessary to gain a general idea of the various attractions of the park and provides a half day at Mammoth Hot Springs for visiting the wonderful terraces and boiling springs near the hotel, and almost an entire day is devoted to the Upper Geyser Basin. The six principal points visited by tourists are Mammoth Hot Springs, Norris, Lower and Upper Geyser Basins, Yellowstone Lake, the Grand Canyon and the Great or Lower Falls of the Yellowstone. This side trip from Livingston and return including rail transportation between Livingston and Gardiner and stage transportation in the park, together with hotel lodging and meals, is listed at $53.50. The hotel rates in the park are $5 and upward per day for additional time to the regular trip.

After leaving Livingston, the Northern Pacific goes through the Bad Lands, crossing the Missouri River at Bismarck, thence to St. Paul and Minneapolis. A connection may be made at Huntley for Lincoln from which point Omaha, Kansas City and St. Louis may be reached.

Chicago, Milwaukee and St. Paul

Leaving Seattle or Tacoma, this road goes through the picturesque forest-clad canyons of the Snoqualmie River to the summit of the Cascade range, which is pierced by the Snoqualmie tunnel. On the eastern slope of this range are the Keechelus and Kachess lakes. The road traverses the Kittitas Valley, one of the chief fruit districts of Washington, crosses the Columbia and passes through the Palouse grain country to Spokane. Leaving Spokane, the "Panhandle" of Idaho is crossed past mountain peaks, narrow gorges, lakes and rivers to Montana. After passing Lake Chatcolet the road runs along the banks of the St. Joe River and again enters the mountain region of the Bitter Root and other ranges of the main Rockies. Then, passing through the Missoula and Deer Lodge Valley, it arrives at Butte. Shortly after this the Continental Divide is passed through Pipestone Pass Tunnel. At Three Forks, the Gallatin, Jefferson and Madison rivers unite to form the Missouri. The ride through the Montana Canyon is one of the features of the trip. Passing through the Musselshell and Yellowstone valleys, interest is centered in irrigation, dry farming, fruit growing and grazing. Leaving Montana and skirting the Bad Lands of North Dakota, the road passes through the Standing Rock Indian Reservation and crosses the Missouri River at Mobridge, S. D., from there traversing the grain fields of North Dakota and Minnesota to Minneapolis and St. Paul. The route then turns southeast through the upper regions of the Mississippi Valley for 140 miles to LaCrosse, Wis., where the Mississippi is crossed. Then through the beautiful lake region and the "Dells" of Wisconsin to Milwaukee and Chicago.

Marriages

Oscar Dowling, M.D., Shreveport, La., to Mrs. Lula Tindall George, Monroe, La., at Monroe, La., March 16.

Wilford Hall Crutcher, M.D., Ingleside, Neb., to Miss Golda Van Dyke of Oklahoma City, at Kansas City, February 24.

Raymond Arthur Tearnan, M.D., Munising, Mich., to Miss Sara Hildegarde Hoesley of Chicago, February 27.

James Elijah Neely, M.D., Elmo, Mo., to Miss Bessie K. Williams of Plattsburg, Mo., March 1.

John C. Joiner, M.D., Honey Grove, Tex., to Miss Fallie Murrell of Gainesville, Tex., March 4.

Deaths

James F. Donnelly, M.D. University of Louisville, 1900; of Brooklyn; for several years surgeon on the Ward, Cunard and Hamburg-American lines and once chief health officer for the Haytian Republic; for three years a member of the staff of the health officer of the Port of New York; who went to Belgium with the first American National Red Cross unit and after his return to this country, returned to Europe in November, 1914, as director of one of the Servian units; died in Nish, Servia, February 24, from typhoid fever, aged 45.

Samuel Boyce Craton, M.D. Syracuse (N. Y.) University, 1890; a Fellow of the American Medical Association and American Academy of Ophthalmology and Oto-Laryngology; instructor in ophthalmology in his Alma Mater; oculist and aurist to the House of Providence, Syracuse; assistant ophthalmologist to St. Joseph's Hospital and ophthalmologist to Syracuse Hospital for Women and Children and Syracuse Free Dispensary; died at his home in Syracuse, February 26, from pneumonia, aged 51.

Joseph Bascom Griswold, M.D. Rush Medical College, 1858; a Fellow of the American Medical Association; a veteran of the Civil War; and formerly state department commander of the G. A. R. of Michigan and formerly president of the Michigan State Medical Society and a member of the State Board of Registration in Medicine; chief surgeon of the Grand Rapids and Indiana Railroad; died at his home in Grand Rapids, Mich., March 9, aged 73.

Jones Cadwalader Abernathy, M.D. Tulane University, New Orleans, 1860; surgeon of the Second Alabama and Forty-Third Georgia Infantry, C. S. A., during the Civil War; a member of the Medical Association of the State of Alabama and once president of the Jefferson County (Ala.) Medical Society; one of the best-known practitioners of Alabama; died at his home in West End, Birmingham, Ala., February 27, from heart disease, aged 79.

Thomas Elliott, M.D. Jefferson Medical College, 1877; a Fellow of the American Medical Association; a member of the surgical staff of the C. H. Buhl Hospital, Sharon, Pa., and surgeon to the United States Steel Company's plants at Sharon and South Sharon, Pa.; founder of the Elliott Hospital, Sharon; died in that institution, February 28, from septicemia, due to an operation wound, aged 59.

Reginald A. D. King, M.D. McGill University, Montreal, 1868; president of the St. Francis' Medical Association; a veteran of the Civil War; chairman of the board of education of Waterville, Que.; a member of the executive committee of the Forestry Congress; for many years principal medical officer in the Canadian Army Medical Corps; died at his home in Waterville, Que., February 19, aged 69.

George Keenan, M.D. Rush Medical College, 1883; a Fellow of the American Medical Association; a prominent citizen and practitioner of Madison, Wis.; consul-general for the United States at Bremen, Germany, during the second term of office of President Cleveland; one of the founders of St. Mary's Hospital, Madison, Wis.; died at his home in Madison, March 4, from pneumonia, aged 55.

Harry Garrison Plymire, M.D. College of Physicians and Surgeons of San Francisco, 1900; a Fellow of the American Medical Association and coroner and public administrator of San Mateo County for three terms; founder of the South San Francisco Hospital and vice-president and director of the Bank of South San Francisco; died at his home in that city, February 27, from pneumonia, aged 38.

James S. Herron, M.D. University of Pennsylvania, Philadelphia, 1861; surgeon in the Confederate service throughout the Civil War; acting assistant surgeon, U. S. Army, from 1873 to 1875; on duty at the United States Navy Yards at Pensacola, Fla., during two yellow-fever epidemics; for nearly half a century a practitioner of Pensacola; died at his home in that city, February 20, aged 79.

Frederick Ashford Guthrie, M.D. Rush Medical College, 1896; a Fellow of the American Medical Association and American Academy of Ophthalmology and Oto-Laryngology; local surgeon for the Illinois Central Railroad at La Salle, Ill.; a specialist on diseases of the eye, ear, nose and throat; died in the Durand Hospital, Chicago, February 28, from meningitis following diphtheria, aged 42.

Thomas Byrne, M.D. New York University, New York City, 1888; of West Hoboken, N. J.; physician to the Hudson County Penitentiary; surgical director of the North Hudson

Hospital, and visiting surgeon to St. Mary's Hospital, Hoboken, and Christ's Hospital, Jersey City; died in the German Hospital, New York City, March 2, from an intestinal disorder, aged 56.

Walter Linton Brown, M.D. College of Physicians and Surgeons, Baltimore, 1913; a veteran of the Spanish-American War with service as a member of the Hospital Corps in the Philippine Islands for eight years; superintendent of a hospital in Richwood, W. Va., since June, 1914; died in Mercy Hospital, Baltimore, February 23, from heart disease, aged 41.

Lyman Shoemaker Reber, M.D. University of Pennsylvania, Philadelphia, 1870; of South St. Louis, Mo.; for several years a member of the medical staff of the Harrisburg (Pa.) State Hospital; died at his home in South St. Louis, February 28, from poisoning from carbolic acid, believed to have been accidentally self-administered, aged 68.

Abraham C. Treichler, M.D. Jefferson Medical College, 1869; a Fellow of the American Medical Association; and a well-known practitioner of Lancaster County, Pa.; one of the organizers of the Elizabethtown (Pa.) Water Company; died at his home near Elizabethtown, February 27, from erysipelas following a cerebral hemorrhage, aged 70.

Jehu Little, M.D. Long Island College Hospital, Brooklyn, 1865; Jefferson Medical College, 1877; a pioneer practitioner of McLean County, Ill.; hospital steward of the Thirty-Third Illinois Volunteer Infantry during the Civil War; and for nearly half a century a practitioner of Bloomington; died at his home in Bloomington, March 11, aged 81.

Nicholas B. Delamater, M.D. Hahnemann Medical College, Chicago, 1873; formerly of Chicago; for many years professor of mental and nervous diseases and later emeritus professor in his Alma Mater; who went to Sanford, Fla., on account of his health in 1913; died in the Elgin State Hospital, March 11, from senile dementia, aged 67.

William Orlando Griggs, M.D. Jefferson Medical College, 1866; a life member and for twenty years chairman of the committee on science and art of the Franklin Institute, Philadelphia; a well-known student and collector of antique and modern firearms; died at the home of his son in Philadelphia, February 21, from heart disease, aged 70.

Robert Farnham, M.D. University of Pennsylvania, Philadelphia, 1867; of Washington, D. C.; formerly a member of the Medical Society and Medical Association of Washington, D. C.; one of the oldest members of the Sigma Chi Fraternity; died in the drawing room of a sleeping car near Altoona, Pa., February 23, aged 72.

Henry W. M. Washington, M.D. Jefferson Medical College, 1855; a member of the Medical Society of Virginia and for many years a practitioner of North, Matthews County; formerly an officer of the United States Navy and later a surgeon in the Confederate Navy; died in a hospital in Norfolk, Va., March 5, aged 79.

Murray Baldwin Kirkpatrick, M.D. Jefferson Medical College, 1879; formerly of Trenton, N. J.; founder of the Philadelphia Mission and a Baptist clergyman; for several years a medical missionary of the American Baptist Missionary Union in Burma; died at his station in Thebaw, Burma, February 10, aged 64.

Alexander F. Gillis, M.D. Bellevue Hospital Medical College, 1876; a member of the Medical Society of the State of Pennsylvania; for ten years chief surgeon at the Emergency Hospital, Carbondale, and later at the Carbondale City Private Hospital; died at his home in Carbondale, Pa., February 28, aged 60.

Fernand Louis J. M. de Verteuil, M.D. Edinburgh, 1905; M.R.C.S., L.R.C.P., London, 1904; of Vancouver, B.C.; a surgeon in the Royal Naval Reserve and a well-known specialist on tropical diseases; was lost at sea by the sinking of *H. M. S. Good Hope* in battle off the coast of Chile, in November, 1914.

Lewis E. Hemenway, M.D. Detroit College of Medicine, 1906; a Fellow of the American Medical Association; a member of the Vermont State Medical Society and formerly secretary of the Bennington County Medical Society; died at his home in Manchester Center, Vt., March 2, from pneumonia, aged 37.

Frederick Harlen Klaer, M.D. University of Pennsylvania, Philadelphia, 1904; a Fellow of the American Medical Association; instructor in medicine in his Alma Mater and chief of clinic in the Medical Dispensary of University Hospital, Philadelphia; died in the University Hospital, February 27, aged 37.

Charles B. Fry, M.D. Albany (N. Y.) Medical College, 1861; one of the oldest practitioners of central Illinois; for many years district surgeon at Mattoon, Ill., for the Illinois Central Railroad, and division surgeon for the Big Four System; died at his home in Mattoon, March 3, aged 74.

Horace E. Mann, M.D. Long Island College Hospital, Brooklyn, 1874; a member of the Wisconsin State Medical Society; a veteran of the Civil War; a member of the first city council and for several terms mayor of Marinette, Wis.; died at his home in Oak Park, Ill., March 3, aged 70.

John Lincoln Bromley, M.D. University of Pennsylvania, Philadelphia, 1890; a member of the Medical Society of the State of Pennsylvania, ophthalmologist to the Episcopal and St. Timothy's hospitals, Philadelphia; died at his home in Philadelphia, March 4, from heart disease, aged 46.

Cuvier Lipscomb, M.D. Medical College of Virginia, Richmond, 1865; a Confederate veteran; local surgeon of the Missouri, Kansas and Texas Railway at Denton, Tex.; formerly president of the Denton County Medical Society; died at his home in Denton, February 18, aged 74.

W. Irving Burns, M.D. University of Vermont, Burlington, 1896; University of Buffalo, 1897; of Roanoke, Va.; formerly of Witt, Ill.; and a member of the Illinois State Medical Society; died suddenly from heart disease on a passenger train near Lithia, Va., March 1, aged 60.

Henry William Caldwell, M.D. University of Buffalo, 1866; a veteran of the Civil War in which he served as hospital steward of the Eighth Michigan Volunteer Infantry; coroner of Oswego County, N. Y., from 1876 to 1885; died at his home in Pulaski, N. Y., February 24, aged 73.

Thomas E. R. Miller, M.D. Miami Medical College, Cincinnati, 1866; a veteran of the Civil War; for three years health officer of Frederick County, Md.; formerly a member of the state legislature; died at his office in Lewistown, Md., February 27, from heart disease, aged 73.

Blannerhassett H. Smothers, M.D. University of Alabama, Mobile, 1885; a member of the Medical Association of the State of Alabama and for more than twenty years a practitioner of Shelby County; died at his home in Vincent, Ala., February 18, from pneumonia, aged 50.

Stuart Harry Benton, M.D. University of Buffalo, 1870; Bellevue Hospital Medical College, 1879; formerly a member of the Medical Society of the State of New York; a member of the Association of Physicians of Long Island; died at his home in Brooklyn, March 2, aged 69.

Henry Clay Burcham, M.D. University of Michigan, Ann Arbor, 1889; formerly a member of the Indiana State Medical Association and for many years a practitioner of Richmond, Ind.; died at his home in Abington, Ind., Dec. 26, 1914, from cerebral hemorrhage, aged 54.

William W. Mosby, M.D. University of Louisville, Ky., 1846; surgeon of volunteers throughout the Civil War; for two terms a member of the Missouri State Senate; the oldest practitioner of Ray County, Mo.; died at his home in Richmond, February 26, aged 90.

Gustavus Judson Nelson, M.D. Medical School of Maine, Brunswick, 1877; for fifteen years superintendent of the public school of China, Maine, and for thirteen years secretary of the local board of health; died at his home in China, February 19, aged 68.

David John Minchin, M.D. University of Toronto, Ont., 1885; first president of the Waterloo County (Ont.) Medical Association and one of the organizers of the Berlin and Waterloo County Hospital; died at his home in Berlin, February 27, aged 56.

Elisha Hammond Lyford, M.D. Medical School of Maine, Brunswick, 1866; for many years a practitioner and druggist of Vinal Haven, Maine, but for the last six years a resident of Dover, Maine; died at his home in that city, Dec. 19, 1914, aged 74.

Taylor F. Ealy, M.D. University of Pennsylvania, Philadelphia, 1874; also a clergyman and for many years engaged in missionary work among the Indians of New Mexico; died at his home in Schellburg, Pa., February 20, from pneumonia, aged 66.

Osborne Greene Lord, M.D. Medical School of Maine, Brunswick, 1870; a practitioner of Kaukauna, Wis., since 1872; for twenty years treasurer of the Outagamie County Board of Education; died at his home February 14, aged 69.

James Christopher Hull (license, Rhode Island, 1895), for forty-four years a practitioner of Providence, R. I.; died at his home in that city, March 2, from heart disease, aged 70.

Raynor Spalding Freund, M.D. University of Michigan, Ann Arbor, 1899; a member of the Montana State Medical Association and a prominent practitioner of Butte, Mont.; died at his home, February 26, from nephritis, aged 42.

Alfred Walter Maynard, M.D. College of Physicians and Surgeons in the City of New York, 1872; a Fellow of the American Medical Association and an examiner in lunacy in New York City; died at his home, March 1, aged 63.

Andoniram Judson Collar, M.D. University of Michigan, Ann Arbor, 1884; of Yreka, Cal.; who was operated on recently in St. Francis' Hospital, San Francisco; died at the home of his son in Alameda, Cal., February 21, aged 63.

Walter Montgomery James, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1869; founder and for many years editor of *The Homeopathic Physicians' Journal;* died in his office in Philadelphia, February 24, aged 65.

Charles Ellsworth Boyd, M.D. Baltimore Medical College, 1892; University of Wooster, Cleveland, 1892; a Fellow of the American Medical Association; died at his home in Newton, Ia., February 27, from pneumonia, aged 45.

James Peckham Campbell, M.D. Syracuse (N. Y.) Medical College Eclectic, Rochester, N. Y., 1854; for many years surgeon of the Cunard Line; died at his home in New York City, February 28, from nephritis, aged 81.

Susan Grace Dougall, M.D. Woman's Medical College of the New York Infirmary for Women and Children, 1889; of Montreal; who had lived in England for the last seven or eight years; died Dec. 5, 1914, aged 62.

William Ernest Brown, M.D. Trinity Medical College, Toronto, 1891; of Peterboro, Ont.; died in that city, March 2, from the effects of strychnin, self-administered it is believed, with suicidal intent, aged 55.

Richard Finlay, M.D. Medical College of Ohio, Cincinnati, 1880; of Centerville, S. Dak.; a pioneer practitioner of South Dakota; died suddenly in the opera house in Centerville, February 24, aged 71.

Harmon L. McCullough, M.D. Western Reserve University, Cleveland, 1883; of Cookport, Pa.; also a druggist; died in a sanatorium in Battle Creek, Mich., February 25, from septicemia, aged 61.

W. Thad Hunt, M.D. Medical College of Georgia, Augusta, 1888; of Townville, S. C.; a member of the South Carolina Medical Association; died in the Anderson (S. C.) Hospital, Dec. 21, 1914.

Sherman Eldon Carlton, M.D. Cleveland College of Physicians and Surgeons, 1902; a Fellow of the American Medical Association; died at his home in Cleveland, February 7, from nephritis, aged 51.

George B. McClellan Hill, M.D. College of Physicians and Surgeons, Chicago, 1898; specialist in diseases of the eye, ear, nose and throat; of Paris, Ill.; died at his home in that city, February 11, aged 51.

Thomas Henry Maguire, M.D. Harvard Medical School, 1900; a member of the staff of the Carney Hospital, Boston; died at his home in North Dorchester, Boston, March 5, from pneumonia, aged 38.

Samuel Henry Rabuck, M.D. Rush Medical College, 1896; a member of the Medical Society of the State of New York; died at his home in Huntington, Long Island, March 3, from pneumonia, aged 44.

William R. Grissom, M.D. University of Tennessee, Nashville, 1886; formerly a member of the Kentucky State Medical Association; died at his home in Columbia, Ky., February 22, aged 61.

William Warner, M.D. Columbus (Ohio) Medical College, 1879; is reported to have committed suicide, March 11, by hanging himself to a rafter in his home in Vera Cruz, Ind.

Alvin C. Hiester, M.D. Rush Medical College, 1880; a member of the Illinois State Medical Society; died at his home in Chicago, February 25, from pleuropneumonia, aged 60.

Henry Irving Land, M.D. Medical College of Virginia, Richmond, 1911; a member of the Medical Society of Virginia; died at his home in Norfolk, Va., February 23, aged 27.

David McCaw, M.D. Medical College of Virginia, Richmond, 1884; a member of the Medical Society of Virginia; died at his home in Richmond, Va., February 27, aged 57.

Alphonsus Vincent King, M.D. College of Physicians and Surgeons, Chicago, 1909; died at his home in Chicago, February 26, from pneumonia, aged 31.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

WINE OF CARDUI

A Chapter with a Sherlock Holmes Flavor

During the week beginning February 21 an editorial and a Propaganda article dealing with the activities of the Wine of Cardui concern were prepared and published in THE JOURNAL for February 27. The final forms of THE JOURNAL are printed, and mailing commences, on Thursday of the week of issue, although the publication does not reach subscribers until Saturday. These chronological details are given for reasons that will be apparent later.

THE JOURNAL's articles (editorial and Propaganda) called attention, among other things, to the activities of detectives and other employees of the "patent-medicine" interests, since the Wine of Cardui suits had been instituted. Passing notice was given to the case of an individual who had posed as a visitor to Chattanooga and had ingratiated himself into the new church and into the confidence of its pastor, the Rev. C. H. Myers, apparently with the idea that "information" was to be obtained from those who left the First Methodist Church of Chattanooga after the Wine of Cardui exposures. THE JOURNAL's articles containing this material went to press, as has been said, Thursday morning, February 25. On Friday morning, February 26, the Chattanooga *Times* came out with a "story" headed:

> **DECLARE IT CONSPIRACY**
>
> **FRIENDS OF JOHN A. PATTEN SECURE INTERESTING INFORMATION**
>
> **'Westerner' Is Quoted in Reporting Dr. Myers**
>
> **Newell Sanders Credited With First Thought of Securing the Thunder for the Attack on Mr. Patten in the Journal of the American Medical Association**

The gist of the *Times'* article was to the effect that the exposés that have appeared in THE JOURNAL regarding Wine of Cardui were inspired originally by an ex-United States senator, Mr. Newell Sanders of Chattanooga. Also that material had been furnished for such articles by the Rev. C. H. Myers of Chattanooga, late pastor of the First Methodist Episcopal Church of that city and now pastor of the Pilgrim Congregational Church. Further it was declared that the American Medical Association had recently had a Mr. Mattson go to Chattanooga to obtain additional information on Wine of Cardui and its owners which information was to "appear in the New York *Tribune* and other periodicals." Barron referred, also, to the case of the Chattanooga Medicine Company against Dr. Dowling, president of the Louisiana State Board of Health. He alleged that Mr. Myers had stated that "the American Medical Association was financing the Dowling attack against Patten" and that it "had paid Creel to write the articles in *Harper's Weekly.*"

The allegations, published by the Chattanooga *Times,* were made by one Benjamin J. Barron described by the *Times* as a "western business man" who had been visiting in Chattanooga. The *Times* followed up this first roor-back with a second, a day or two later, in which it published a photographic reproduction of a private letter of introduction to Mr. Mattson given by the Rev. Mr. Myers to Barron.

THE STORY OF THE SCRAP-BOOK

The apparent intent of the *Times'* articles was to give color to Barron's charge that Mr. Myers had furnished THE JOURNAL with a scrap-book containing information regarding Wine of Cardui or its owners. The letter of introduction brought by Barron to Chicago was to a Mr. Mattson, an old resident of Chattanooga, now living in Chicago. Mr. Mattson, who represents the Cooperative Medical Advertising Bureau of various state medical journals, has a desk in the Association building. While technically, in part, in the employ of the American Medical Association, he has no relation whatever to The Journal, although he is, of course, more or less familiar with The Journal and its work. He and his family spent their Christmas holidays with relatives in his old home, Chattanooga.

Having been an active member of the First Methodist Church of that city, Mr. Mattson met the ex-pastor of that church, Mr. Myers. Naturally, Mr. Mattson was interested in the events that had led to the formation of the new church. Mr. Myers, being busy, was not able to go into details but he told Mr. Mattson that he had a scrap-book containing newspaper clippings and a few letters of commendation that gave a chronological review of the entire matter. This, Mr. Myers thought, might interest Mr. Mattson who was unfamiliar with the fight that had been made against the minister, and he offered to let Mr. Mattson take this book so that he might read it on the train on his way back to Chicago.

This, then, is the scrap-book about which so much is being made. It contained such information regarding John A. Patten, Wine of Cardui or the Chattanooga Medicine Company as had appeared in the Chattanooga newspapers—AND NONE OTHER! The few letters contained in the book were of a personal nature and dealt wholly with church matters. Had Mr. Mattson known it, The Journal had a much more exhaustive scrap-book of its own of the newspaper comments dealing with the subject.

ENTER BARRON, THE SLEUTH

Now to go back a little in this thrilling story of "Barron the Sleuth, or Trailing the Medical Ogre to Its Lair." Early in December, an individual "blew in" to Chattanooga and put up at the most expensive hostelry in the city, the Hotel Patten. He registered as Benjamin J. Barron and casually dropped word that he was a prosperous Colorado business man stopping at Chattanooga for his health. He exhibited letters indicating that he was an officer and stockholder in a large Denver corporation.

From the first, Mr. Barron assiduously cultivated the company of the Rev. C. H. Myers and showed the liveliest interest in the new church and its more influential members. He went further. After donating liberally to the new church, accepting the hospitality of Mr. Myers' home and table, and presenting the pastor with a handsome bible inscribed "Yours for a Glorious Success," he capped the climax by "joining" the church. Mr. Barron was, in fact, very close to Mr. Myers.

Before going further, let it be said here that The Journal's investigations show that Barron, the "western business man" hailed originally from that breezy western village, Boston, Mass., where he was employed as a bookkeeper. The Journal has in its possession information regarding Barron that would make interesting reading. This by the way.

No sooner did Benjamin J. Barron learn that Mr. Myers had lent Mr. Mattson his scrap-book than he, sleuth-like, sniffed mystery and dark plots. Hardly had Mr. Mattson left Chattanooga for Chicago than it became necessary for Mr. Barron to make a "business trip" to Chicago. Would Mr. Myers give him a letter of introduction to Mr. Mattson? Certainly. Might he have the pleasure of bringing back the scrap-book so that he could while away the tedium on the train? Again, certainly! Hence the letter of introduction (photographically reproduced in the Chattanooga *Times*) from Mr. Myers to Mr. Mattson, in which Mr. Myers suggests that Mr. Barron be given the scrap-book to bring back to Chattanooga.

As soon as Barron had obtained this letter of introduction he, with a fine delicacy seldom found in "western business men," had it photographed, presumably before he left Chattanooga. Certain it is that the photograph was made before the original letter was presented to Mr. Mattson, for the letter has been in the latter gentleman's possession ever since.

Mr. Barron arrived in Chicago, put up at one of the most expensive hotels and while here spent somebody's money with easy abandon. He called Mr. Mattson up just about closing time one Saturday afternoon and made an appointment with him at the Association's building. A member of The Journal staff dropped in during the interview. Barron's story was a rehash of the one told in Chattanooga. He "flashed" his "planted" credentials to show that he was prominent in oil circles out in Colorado and Wyoming. Always, however, he came round to that perenially interesting subject, Wine of Cardui, and finally suggested that, if agreeable, he could take the scrap-book now.

But alas! The scrap-book had already been returned to Mr. Myers, through the prosaic medium of an express company, before Sleuth Barron arrived in Chicago. The disappointment must have been acute; it could only have been more poignant had Barron actually got the book in his possession and found what an innocuous affair it was. His employers would hardly have considered it worth while to photograph even the personal letters. Having learned that the coveted volume had been returned, Barron at once exhibited a burning desire to become better acquainted with Mr. Mattson, presumably with the idea that he might worm out of this gentleman the fearsome secrets of the villainous conspiracy supposed to be buried in the depths of the scrap-book. Invitations to dinner at expensive hotels and invitations to theaters (at scalpers' prices) were given to Mr. Mattson. They were not accepted. Similar invitations were extended to a member of The Journal staff, presumably in the belief—unfounded—that he was familiar with the contents of the scrap-book. These, too, were "turned down." We mention these details so that Mr. Barron's expense account can be checked up by his employers!

SMITH, BARRON, ET AL.

To digress for a moment. While in Chicago Barron was in communication with a detective who went under the name of Smith and put up at the Hotel LaSalle. Smith posed as a "journalist" seeking data for an article showing the evils of prohibition which, he alleged, had driven the "lumberjacks" of the southern camps to drink alcohol-containing "patent medicines." Later Smith turned up in Chattanooga where he, too, interested himself in the new church and its pastor. He repeated the same story about seeking information on "patent medicines" containing alcohol. He was, he said, seeking "local color" for his article. But this, as Kipling says, is another story.

After hanging around in Chicago for about a week—never using a street car when a taxicab would do as well—Mr. Barron flitted back to Chattanooga. The Journal in the meantime had learned Barron's true character and suggested that Mr. Mattson notify Mr. Myers of the presence of this unconscionable sneak in his new church. This was done and Mr. Barron found on his return to Chattanooga that his usefulness to his employers—for this particular "job," at least—was over. All he had to show for the money that had been spent was a photograph of a private letter of introduction! This was reproduced in facsimile in the Chattanooga *Times*. The "patent medicine" mountain had indeed labored and brought forth a ludicrously small mouse.

SUMMARY OF BARRON'S ACTIVITIES

Summed up, the series of incidents may thus be given:

1. Benjamin J. Barron, "western business man," registers at "Hotel Patten," Chattanooga.
2. Barron exhibits great interest in the new church and its pastor, donating handsomely, presenting a bible, accepting hospitality of the pastor and other members of the church and finally "joining" the church.
3. Barron learns that Mr. Myers has loaned his scrap-book to Mr. Mattson to read on his way to Chicago.
4. Barron immediately leaves for Chicago, "on business."
5. Before leaving Barron asks for, and receives, a letter of introduction from Mr. Myers to Mr. Mattson and asks for, and receives, permission to bring back the scrap-book.

6. As soon as he gets the letter of introduction Barron, or his employers, photograph it.
7. Barron's record investigated.
8. Barron fails to get scrap-book and returns to Chattanooga.
9. Barron makes various false charges claimed to have been based on his intimate friendship with Mr. Myers and members of the new church.
10. Chattanooga *Times* publishes alleged interview with Barron and a letter from Barron; it also photographically reproduces the private letter given Barron.
11. Thus, based on "faked" evidence furnished by a stranger of unsavory antecedents, a self-admitted sneak and abuser of confidence and hospitality, the *Times* articles have all the appearance of an attempt to discredit well-known and reputable citizens of Chattanooga.

This, then, is in brief the story of just one phase of the protean activities that have been exhibited since The Journal denounced Wine of Cardui as a fraud. One of the most remarkable features of this particular exposure is the widespread attempt that has been made to credit—or accuse—other agencies than The Journal with responsibility for the Wine of Cardui articles. In order to place the facts before our readers, the following statements are made:

SOME FACTS

1. The articles on Wine of Cardui and the concern that makes it are but an incident of The Journal's campaign of public education on the subject of frauds in medicine.

2. The Journal alone is responsible for the investigation of Wine of Cardui and its method of exploitation.

3. Mr. Myers and Mr. Sanders were unknown to The Journal until months after the article appeared which caused Patten and his company to sue.

4. Mr. Myers and Mr. Sanders have never furnished The Journal any information for articles relative to Wine of Cardui, its makers or its owners.

5. The statements of Barron concerning The Journal and *Harper's Weekly*, the New York *Tribune* and the Louisiana State Board of Health are unqualifiedly false.

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report. Previous instalments of abstracts appeared in The Journal, Nov. 14 and 21, Dec. 12, 1914, Jan. 2 and 30, and Feb. 20, 1915.

Colchi-Sal

Colchi-Sal, said to be made by the Anglo-American Pharmaceutical Co., Ltd., New York, is advertised, sold and "guaranteed" (sic) by E. Fougera and Co., Inc., New York. According to the label of a recently purchased specimen:

> "Each Capsule contains Cannabis Indica (Active Principle of) 1-500th Grain (⅛ Milligram); Colchicine (Crystallized) 1-250th Grain (¼ Milligram); Methyl Salicylate 20 Centigrams."

The advertising circular around the bottle adds that the mixture also contains "appropriate aromatic adjuvants."

It is recommended in "Gouty and Chronic Rheumatic Manifestations," "acute cases of Gout," "intestinal auto-intoxication or dyspepsia," "bilious headaches," etc. Salicylates are generally recognized as valuable in acute manifestations of acute articular rheumatism; colchicum is useless in these conditions. Both salicylates and colchicum are practically useless in chronic rheumatic and in chronic gouty affections. For dyspepsia, bilious headache, etc., salicylates are distinctly contra-indicated and the drastic purgation produced by colchicum would not be thought desirable. Though methyl salicylate administered internally is not generally considered so efficient as sodium salicylate, it is asserted that it

> ". . . is found far more effective than salicylate of soda or other salicylic derivatives when given in conjunction with colchicine as Colchi-Sal."

Further, the highly improbable and unsubstantiated claim is made that "the active principle of *Cannabis indica*" (whatever that may be) "corrects any tendency of the colchicine to irritate the gastro-intestinal tract" and that the "appropriate aromatic adjuvants" "prevent intolerance of the methyl salicylate."

Colchi-Sal is put up in a way to appeal to the public; the bottle has the name "Colchi-Sal" blown in the glass; the label gives full instruction for the use of Colchi-Sal, and also the price, suggesting that the preparation may be freely purchased. Wrapped around the bottle is a circular advising its use in various affections.

The physician who acts on the advice that it is well to "insist on the pharmacist dispensing original bottles . . ." of the "little green capsules" actually suggests to his patient the use of this preparation of methyl salicylate and colchicum in conditions in which these drugs may do much harm and in which proper treatment is imperative.

Colchi-Sal is typical of unscientific ready-to-take proprietaries. It was held ineligible for New and Nonofficial Remedies because of its secret composition, viz., the unknown nature of the "active principle of Cannabis indica" (Rule 1); because the circular in the package and the name blown in the bottle constitute advertisement to the laity (Rule 4); because the claim that cannabis indica removes the gastro-intestinal irritation, and the claim of the superiority of methyl salicylate are unwarranted therapeutic claims (Rule 6); because the name does not indicate the presence of the habit-forming cannabis indica, and because of its unscientific composition (Rule 10).

Waterbury's Compound

The Waterbury Chemical Company having requested that the Council reconsider its action of four years ago (see The Journal A. M. A., Oct. 9, 1909, p. 1201) on the product then known as Waterbury's Cod-Liver Oil Compound, now called Waterbury's Compound, the matter was submitted to a referee. The referee reported that the statement now made as to the composition of this product is as follows:

> "Made from Cod Liver Oil, Digestive Ferments, Malt Extract Unfermented, Hypophosphites Comp. Special, Ext. Cherry, Eucalyptus, Aromatics, etc."

He held that the Waterbury Chemical Company has not submitted satisfactory evidence to indicate that the objections of the Council's former unfavorable report have been met; that there is no evidence that the product is a substitute for cod-liver oil in any way; and that under the present methods of exploitation it constitutes what is at least an inferential fraud; and recommended that no further consideration be given to Waterbury's Compound. The report was adopted by the Council.

Correspondence

A Few Letters on the Harrison Law

[From the large number of letters received regarding the Harrison law and its provisions, a few discussing different points of the law have been selected, and are printed herewith as illustrations of the inquiries being received. As some of these letters were probably not intended for publication, the names are in those cases omitted. They will serve to illustrate the wide range of discussion which is being excited by this measure, as well as some of the difficult and intricate questions which may be raised regarding the operation of the law.

Since its last issue, The Journal has taken up with the Commissioner the entire question of the operation of the law as applied to physicians. The Journal will be glad to act as the intermediary between the physicians of the country and the Commissioner of Internal Revenue at Washington, to whom a large number of inquiries have been directed personally. Physicians desiring information on any of the provisions of the bill are requested to send their letters to

THE JOURNAL. They will be classified and suitable inquiries submitted to the Commissioner of Internal Revenue for official replies, which will then be published in THE JOURNAL for the information of its readers. [See editorial, Additional Narcotic Law Regulations, this issue, p. 1002.—ED.]

BELIEVES THE LAW TYRANNIC

To the Editor:—I have been surprised to observe that among so many inquiries about the new Harrison law there have been but few adverse criticisms, although it is justly liable to adverse criticism.

1. The law is an usurpation by Congress of the police power of the states. The right of Congress to impose a revenue tax on any article is admitted, but in the case of narcotics the Congress assumes authority to regulate use, distribution and sale. If it is competent for the Congress to regulate the sale and distribution of one drug or one group of drugs, why not of another, and why not of all? If these premises be admitted, it is not apparent why the Congress may not assume the enactment of general medical practice laws and complete the federal usurpation of state authority.

2. The necessary blanks for ordering supplies of the listed drugs are furnished by a government monopoly at an exorbitant price. Any job printer is glad to furnish similar printed stationery for $3.50 per thousand or less, while the government price is at the rate of $10 per thousand.

3. A statutory offense is arbitrarily and unjustly elevated into a felony, and technical violations of the law, consisting of acts not in their nature criminal, are treated as major crimes. In case of criminal use of narcotic poisons or intent to use—if such use or intent to use be proved—the laws of the several states furnish the needful machinery of justice, and it is their prerogative to deal with such offenders.

4. The most serious of the defects of the Harrison law is in the excessive penalties provided for violation of its rules.

To denounce savage and extreme penalties against mere statutory offenses is a species of cruel tyranny worthy of the dark ages, but a disgrace to our boasted twentieth century enlightenment.

"It is excellent to have a giant's strength,
But it is tyrannous to use it like a giant."

W. K. MCCOY, M.D., Gum Spring, Va.

WHAT TO DO FOR THE DOPE FIEND

To the Editor:—You have answered some important questions on the Harrison bill in the last issue of THE JOURNAL. But I would like to know what the physician is to do for the poor dope fiend who comes pleading for a supply of their favorite drug to tide them along, to prevent them from "going crazy or committing suicide." I noticed a report from Washington to-day saying that it was discretionary with the physician, but I would like to have your interpretation. G. G. HARMAN, M.D., Huntingdon, Pa.

HE BOWS TO THE LAW

To the Editor:—A patient sent his 12-year-old son for medicine. He had spasmodic colic, to which he is subject three or four times each year. I was sick and unable to go. Could I have sent him say one-fourth grain dose of morphin, which would have been necessary to relieve him, if I kept a record of the same on my book?

Am I to understand that the Harrison law allows me to give say eight doses of one-fourth grain of morphin to patients who call at my office when sick, to take home with them if they need it, and I keep a record of the same?

Please be explicit, as different stories are in vogue here. Is there any state law in Ohio which would conflict with your advice as to our duty under the Harrison law? We were always taught that medicine was a liberal profession and *second to none other*, and believe that the U. S. government would not hamper us with any restrictions *save for the good of society*, and we in Ohio humbly bow to this and will do our whole duty. J. J. M.

GROUNDS FOR PRESCRIBING

To the Editor:—Relative to the narcotic law, will you kindly tell me on what grounds shall we prescribe morphin, etc., to chronic, habitual users? Those whom you are absolutely sure will be crazy and do bodily harm to themselves probably and those around them, if without it; those who have used it for years in large quantities. Will thank you for an answer to this inquiry.

H. W. JARRELL, M.D., Mansfield, La.

WHAT IS HIS DUTY?

To the Editor:—I am just starting out to practice and wish to get started right. I have in my community a woman who has used morphin sixteen years. Since the Harrison act, she is unable to secure it without a prescription and has come to me to write them. Can I do it lawfully? If so, is it my duty to do it or not to do it? If you will kindly give me this information, you will oblige one who desires to do right.

C. B. R.

WHY NOT TREAT THE ADDICTION?

To the Editor:—Kindly answer the following question and oblige:

I am a regular practicing physician, graduate of Jefferson, 1876. Am registered.

I have a patient who has been a regular tinct opii fiend for many years. As she cannot get it under the new law, am I in the construction of the Harrison act safe, or is it lawful for me to write her prescriptions? A. M. P.

NOT PERMISSIBLE

To the Editor:—Kindly advise me if it is permissible under the Harrison narcotic law for physicians to leave prescription blanks bearing the signature and registry number at the drug store so that they may be filled out by the druggist under telephone instructions from the physician? The druggist would also append the name and address of the patient to the prescription. N. P. C.

AN INCUMBRANCE

To the Editor:—Has the American Medical Association or any of the medical societies in the United States done anything toward opposing the Harrison law?

I really believe that many of the medical profession will consider the law more of an incumbrance upon them and not effective as intended.

WILLIAM E. STYAN, M.D., Quincy, Cal.

Exposure of Appendix by Cullen's Method

To the Editor:—The article on this subject by Neill (THE JOURNAL, Jan. 23, 1915, p. 299) was read with much interest by myself and assistants, but none of us could see what advantage there was in the use of the tapes, while we could see many disadvantages, particularly in the loss of time.

I have operated on many retrocecal appendixes; have had at least a half dozen since this article appeared. Such appendixes are usually more or less adherent, and many of them are in different stages of gangrene. They can usually be found readily by palpation, by following the wide band, or by locating the junction of the cecum and ileum. The cecum being supported, or in some cases the cecal end of the appendix caught with a hemostat, the surgeon can palpate the deep-seated appendix, and readily accomplish its removal. Its enucleation usually takes about one minute. The meso-appendix is caught with a hemostat, the appendix detached with scissors, and the stump treated in the usual way. The meso-appendix is then ligated. Occasionally there will be a bleeding point from adhesions, but usually there is no further hemorrhage, and the incision, whether gridiron or right rectus, is closed.

J. F. BALDWIN, M.D., Columbus, Ohio.

[The foregoing letter was referred to Dr. Neill, who replied:]

To the Editor:—This method is advocated only in cases of subacute or chronic appendicitis. For years, surgeons have been passing a small piece of gauze or tape through the meso-appendix at its cecal attachment. I have had the opportunity of witnessing many appendix operations performed at the Johns Hopkins Hospital and elsewhere, but never saw the tape method carried to its full extent of usefulness until assisting Dr. Cullen. Furthermore, many surgeons when visiting the clinic have expressed their surprise and gratification at the ease with which the retrocecal and adherent appendix can be removed by this method.

Dr. Baldwin's reference to the loss of time reminds me of one of America's well-known surgeons watching another equally well-known surgeon removing an appendix. After watching the operation for a few moments, the visiting surgeon said, "John, if ever I am operated on for appendicitis, I want you to do it, but I want you to promise me one thing — that you will take ten minutes longer than usual — *these will be very valuable ten minutes to me.*"

It takes about fifteen or twenty seconds to pierce the meso-appendix with a pair of blunt Kelly forceps, to draw a piece of tape through and then to grasp the two ends of the tape with the same forceps. The time actually consumed in placing three or four tapes would therefore be, roughly speaking, from a minute to a minute and a half.

If Dr. Baldwin will try this method in some case in which, after making his gridiron incision, he finds great difficulty in exposing his appendix, I feel sure he will resort to it again when encountering other and similar cases. I really want to thank him for his letter, as it again gives me an opportunity to emphasize to the many readers of The Journal the practicability of this method.

William Neill, Jr., M.D., Baltimore.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PREMATURE BALDNESS

To the Editor:—1. What is the most likely cause of premature baldness occurring between the ages of 18 and 25 years?

2. What treatment would you advise?

J. C. Holley, M.D., Pine Barren, Fla.

Answer.—1. The most that can be said of premature baldness is that it is senile baldness coming on before the usual time. Of its causes we know actually nothing. We do, however, know the sequence of events.

Between the skin of the scalp and the skull there is a thick layer of fat to which the skin is loosely attached and on which it is freely movable. In civilized man, who lives in houses and wears hats, the following changes take place as he approaches later life: This fat layer gets thinner; the scalp becomes more firmly attached to the skull and less movable; the skin becomes more tense, and with these changes the hair becomes thinner and thinner over the top of the head. Finally, in extreme cases, the hair disappears and there is left a bald, glistening crown closely drawn over the skull. This sad picture is senile, spontaneous or simple baldness. Premature baldness is the same thing, only occurring before the age when these changes, which we ordinarily attribute to old age, are expected to appear.

What is the process that has taken place here? There has been a disappearance in great part of the subcutaneous fat; the scalp has become much more dense in structure — has become fibrous or sclerotic — and with this shrinking in the scalp there has been a gradual shrinkage in the hair follicles until they entirely disappear, and are replaced by fibrous tissue. It is a process much like that taking place in many of the tissues in later life, and in some of the organs often as a result of disease. It resembles closely, for example, the destruction of the epithelial tubules in the kidneys that takes place as a result of chronic inflammatory processes. And it is a process that can readily be explained as a result of a chronic inflammatory process in the scalp. This is a reason for one view that all so-called senile baldness is really due to dandruff or seborrheic dermatitis. The sounder view seems to be that the change may be simply one of senile atrophy occurring as a primary process and not secondary to any diseased condition of the scalp.

The explanation of the fact that baldness is usually confined to the top of the head probably is that the increased tension of the scalp resulting from its shrinkage exerts its chief pressure on the top of the head. If one pulled a bag tightly down over the head it would exert much more pressure on the top of the head than around the border.

Simple or senile baldness, in spite of its name, usually begins to manifest itself early. The thinning of the hair becomes apparent before the age of 30 in 80 per cent. of the cases, and persons who are not nearly bald at 50 are likely to keep a passable covering of hair until they reach old age.

The definite causes of simple baldness are uncertain, and there is much room for speculation. As a result, all sorts of factors are invoked to explain it from the wearing of tight hats to improper methods of breathing. Some would go so far as to say there is no such thing and to attribute all of the cases to seborrheic dermatitis. This is an extreme view, but certainly the ravages of dandruff have to be taken into account in all cases of baldness, and in considering the causes of the condition, no separation can be made between simple baldness and that due to dandruff.

Baldness is much commoner in men than in women. This is true, however, only of complete baldness; thinning of the hair as a result of nervousness and other depressing influences on the health is commoner, perhaps, in women than in men. The reasons for the occurrence of baldness less frequently in women than in men are probably various. In the first place, women give much more attention to the toilet of the hair — to brushing it, and to keeping it clean and in good condition; their hats are light things that merely rest on the hair, and finally, the fat layer of the scalp, as of the skin generally, is more abundant in women than in men and atrophies later in life. Man sometimes is inclined to have it that baldness is a sign of intelligence and a result of mental labor and that that is the reason it is commoner in men. This fiction is one of the few consolations that can be urged for the condition, and it seems mean to disturb it, but, truth to tell, there is no ground for it. Baldness may make one look wiser, but it occurs indifferently in the great and the small, and it is no more a sign of wisdom than long hair is of genius.

The broad fact seems to be that in the common occurrence of baldness we have a manifestation of a transitional stage in man's evolution. The hair on the body now is the vestige of a former abundant coat. In the economy of nature, structures atrophy and disappear when they cease to have function, and the need of warmth and other protection afforded by the hair is no longer of great importance to man. Man now uses a hat instead of relying for protection for his head on a shock of hair as his ancestors did, and, as a result, in spite of all his coaxing, the shock of hair is gradually vanishing. This does not mean that you and I can save our hair by discarding our hats. We are a result of our ancestors, and to save our hair we would have to discard the hats of all our ancestors for scores of generations back.

According to this view, heredity is one of the great causes of baldness, and all statistics indicate that this is true. In the statistics of Jackson and of White, the condition is due to heredity in from 30 to 40 per cent. of the cases.

Mistreatment of the hair is also an important factor in the production of baldness. Daily wetting of the hair, especially if no attention is given to drying it, keeping it poor in oil by excessive use of soap and water without supplying any fat in place of that removed, failure to keep it clean, excessive exposure to sunlight, the indiscriminate use of drugs, particularly "hair tonics," and overzealous treatment by barbers and hairdressers — all of these causes are influential in the production of baldness, and are to be guarded against, particularly in the care of hair of those who have already a predisposition to the condition.

The effects of heavy and tight hats by interfering with the circulation of the scalp is considered to be of great importance, and there can be little doubt that it is a factor to be considered. Hats should be light. They should provide for circulation of air, and should not bind the head. It can at least be said for women's hats that usually they are better in these respects than men's.

But after all other factors have been considered, we must still come back to seborrheic dermatitis — dandruff — as the most important cause, and the one to which most care must be given in preventing baldness. According to White's statistics, it is a factor, and perhaps the chief factor, in 79 per cent. of the cases; according to Jackson's, in 72 per cent., and according to Elliot's in 91 per cent.

2. The care of the hair to prevent baldness or to stop the progress of baldness is the same as that for the hair in general.

In the first place, the scalp should be kept clean. The hair should be brushed daily, and the hair and scalp shampooed as often as necessary for cleanliness. The hair should not be allowed to remain dry and lusterless from lack of oil, but, if necessary, should be oiled lightly. For this purpose the best applications are olive oil, sweet almond oil, petrolatum or liquid petrolatum. Keeping the hair devoid of all oil is one of the commonest faults of the present taste as to its toilet. This does not mean that it should be smeared with bear's grease; an excess of fat in the hair becomes rancid and is harmful. All that is needed is that it should have enough oil in it to retain its gloss and pliability — distinctly not an excess.

The promiscuous application of "hair tonics" and other nostrums is regarded by some authorities as an important cause of baldness. These haphazard applications, without any regard to the indications of the individual case, are at best valueless. The same is true of the numerous activities of barbers and hairdressers, when their efforts go beyond the use of measures directed merely to cleansing the hair and scalp. Their singeing the hairs, their various methods of massage, "hair tonics" and "hair restorers" and "scalp treatments" applied indiscriminately, without intelligent appreciation of the indications to be met, may be harmful; they are at best useless forms of diversion. There is no objection, however, to a good shampoo by a careful and clean barber or hairdresser. Having it done for one is a form of luxury.

Massage of the scalp as a measure to check the falling of hair is of some service when the scalp is free from dandruff. With dandruff present, it is of doubtful value or harmful. In massage of the scalp, all that is necessary is to give it a good rubbing, carried only to the point of producing a feeling of "life" and glow. This requires no special skill, but can be done for one more easily than one can do it oneself. Mechanical massage offers no advantages over simple rubbing, and is liable to be too vigorous.

WANTED: REPORTS OF NITROUS OXID-OXYGEN DEATHS

To the Editor:—I have in preparation a paper on deaths from nitrous oxid-oxygen anesthesia, and am anxious to get reports of as many of these as possible. I have already obtained a considerable number, and have thus far found that these deaths have not taken place as the result of asphyxia, as so positively claimed by enthusiastic writers on this anesthetic, but they have occurred from cessation of the heart's action and with the startling suddenness which we are accustomed to expect in deaths from chloroform.

I should like to learn:

1. When possible, the sex and age of the patient, the character of the operation, and the condition of the patient immediately preceding dissolution.

2. The approximate number of patients to whom the anesthetist had previously administered this combination without mortality.

Sufficient data for identification should accompany each report so that there may be no duplication of cases. Names of reporters will not be published without their consent. Facts are wanted, not theories.

J. F. BALDWIN, M.D., Columbus, Ohio.

DISINFECTION OF MILK PANS AND BOTTLES

To the Editor:—Please give me your opinion regarding the use of a solution of hypochlorites for disinfecting the milk cans and bottles in dairies. There is some opposition here to the ruling preventing the use of this substance.

X. Y. Z., Georgia.

ANSWER.—There seems no rea[illegible] health from the use of calcium [illegible] milk bottles and cans. If there [illegible] practice they would appear to be on the ground of the possibility of production of unpleasant odors or tastes. Probably just as good results in cleansing could be obtained with milk of lime, and on no score could there be objection to the employment of the latter substance, which is sometimes used successfully in the treatment of pasteurizing plants after contamination with some slime-producing or other objectionable organisms.

THE HARRISON ANTINARCOTIC LAW

To the Editor:—Under the Harrison law, if a doctor owns a drug store and is a registered pharmacist and has his office in connection with the drug store, does one license cover him as a pharmacist and a physician?

E. G. B.

ANSWER.—No. Paragraph 2, Article 1, of the Regulations reads, "If the applicant . . . is engaged in more than one profession or business where any of the drugs above described are made, stored or dispensed, a separate application for registry must be made and a separate tax must be paid in each such case."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 6-7. Sec., Dr. John Wix Thomas, Phoenix.

CALIFORNIA: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.

IDAHO: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.

MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

MONTANA: Helena, April 5. Sec., Dr. William C. Riddell, Helena.

RHODE ISLAND: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

UTAH: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, 81 12th St., Wheeling.

Arkansas November Report

Dr. W. S. Stewart, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, Nov. 10-11, 1914. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 21, of whom 15 passed and 6 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1908)	84.7
University of Arkansas	(1912) 75.1; (1913) 80.8; (1914)	81.8
University of Colorado	(1914)	88
Howard University	(1914)	88.4
Northwestern University	(1914)	92.1
Barnes Medical College	(1899)	75
Long Island College Hospital	(1878)	75
Jefferson Medical College	(1880)	75
Meharry Medical College	(1914)	75.3
Memphis Hospital Medical College	(1905)	82
University of Nashville	(1907)	78
University of Tennessee	(1914)	89.5
Vanderbilt University	(1914)	87.1

FAILED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Little Rock	(1910)	42.8
University of Arkansas	(1913) 70; (1914)	68.7
University of Louisville	(1909)	64.2
Memphis Hospital Medical College	(1913)	62
University of Tennessee	(1912)	*

* Did not complete the examination.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1910)	Illinois
College of Physicians and Surgeons, Chicago	(1907)	Illinois
Indiana University	(1912) (1913)	Indiana
University of Louisville	(1907)	Kentucky
Tulane University of Louisiana	(1906) (1913)	Louisiana; (1913) Mississippi.
St. Louis University	(1910)	Illinois
Chattanooga Medical College	(1906)	Oklahoma
Memphis Hospital Medical College	(1893)	Kentucky; (1895) (1912) Oklahoma.

The following questions were asked:

CHEMISTRY

1. Define an atom, a molecule, and an element. 2. Define an acid, a base, and a salt, with an example of each. 3. Give the composition of the atmosphere. 4. Give the composition of cow's milk. How does it differ from human milk? 5. Give formulae for baking soda and common salt. What effect has each on digestion? 6. What is alcohol? Give its medicinal value. 7. What are carbohydrates? 8. What is strychnin? Its dose? Test? Antidote? 9. Give test for (*a*) indican, (*b*) blood, (*c*) pus in urine. 10. Give treatment for poisoning by lunar caustic and caustic potash.

ANATOMY

1. Name the bones of the lower extremity. 2. Describe the patella. 3. Give origin, insertion, action, nerve and blood supply of the soleus muscle. 4. Name the branches of the external carotid artery. 5. Give the contents of the popliteal space. 6. Describe the knee-joint. 7. Name and locate the valves of the heart. 8. In Pott's fracture, what

bones are involved? 9. What structures pass through the foramen magnum? 10. What structures are divided in amputation at the middle of the leg?

THEORY AND PRACTICE OF MEDICINE

1. What are the essentials of a proper treatment of disease? 2. Describe the various râles, giving the significance of each. 3. Describe aortic and mitral regurgitant murmurs, and differentiate between each. 4. Give the differential diagnosis of acute bronchitis, influenza and bronchopneumonia. Give etiology, diagnosis and pathology of infantile spinal paralysis. 6. Differentiate between hysteria and neurasthenia. Give treatment of the latter. 7. Give etiology, diagnosis and treatment of rheumatic fever. 8. Give etiology, pathology and treatment of enterocolitis. 9. Give the morbid anatomy and treatment of myxedema. 10. Give treatment of scarlet fever and its complications.

PHYSIOLOGY

1. Give the chief functions of epithelial tissue. Give the chief functions of connective tissue. 2. What are the enzymes? Give their chemical composition. 3. Classify white blood corpuscles and the percentage of each found in the blood. 4. What is the object of the circulation of the blood? 5. Name the four excretory organs of the body and their functions. 6. Classify foods. 7. Define afferent nerve. Define efferent nerve. Give classification of each. 8. What are the functions of the medulla oblongata? 9. Give the function and the value of the lymphatic system. 10. Under what conditions does albumin appear in the urine?

BACTERIOLOGY

1. Define the following: bacteria, pathogenic, saprophytes, and phagocytes. 2. Give classification of bacteria, and an example of each. 3. Name the different modes by which bacteria propagate. 4. Give Koch's law. 5. Describe a tubercle bacilli, and give technic of staining same. 6. Name the various kinds of bacteria that are commonly found in tonsillitis with mixed infection. 7. Name and describe the organisms producing the following diseases: syphilis, pneumonia, diphtheria, anthrax and epidemic cerebrospinal meningitis. 8. What are aerobic and anaerobic bacteria? Give example of each class. 9. For what purpose is more than one stain used on a specimen? 10. What is the principal cause of difference in virulence of infectious diseases?

THERAPEUTICS

1. What conditions affect the dosage of medicines? 2. Compare the therapeutic values of the following preparations and state the indications for the use of each preparation: morphine sulphate, codein sulphate and deodorized opium. 3. What precautions should be observed in administering medicines by the hypodermic method? 4. Differentiate between antagonist and antidote. 5. How would you remove stains of iodin, potassium permanganate and argenta nitrate? 6. Has chloroform therapeutic uses other than as an anesthetic? If so, name them. 7. What is an irritant? What is a counter-irritant? Give an example of each. 8. Give therapeutic uses of phenol. 9. What remedies would you use to relieve the dyspnea due to cardiac asthma? 10. Why do we use diuretics in cardiac feebleness?

HYGIENE

1. What instructions and precautions would you give a patient suffering from pulmonary tuberculosis to avoid spreading the disease? 2. What instructions would you give to a nurse attending a diphtheria patient. 3. What is the significance of colon bacilli in drinking water? 4. What are the dangers to be apprehended in milk as ordinarily found in the market? 5. Name the most easily digested meats. 6. What insects convey micro-organisms and disseminate disease? 7. What effect does excessive exercise have on the heart? What effect does insufficient exercise have on the heart? 8. Give the prophylaxis of uncinariasis. 9. How is the contagion of epidemic cerebrospinal meningitis spread? What are the most effective means of stamping out the disease? 10. Name the most common cause of blindness in childhood and the best means to prevent it.

MATERIA MEDICA

1. (*a*) What countries furnish our gum arabic? (*b*) Give the official preparations of gum arabic. (*c*) Give its properties. 2. (*a*) What is the dose of powdered opium? (*b*) How much opium is there in the following preparations: pulvis ipecacuanhae et opii, grs. xv.; tincture opii, m. xx., and tinctura opii camphorata, drs. 1? 3. Give the physiologic action and dosage of ammonium chlorid. 4. (*a*) What is the common name of antimonii et potassi tartras? (*b*) Give its physiologic action. 5. Give the physiologic action of zinc oxid. 6. (*a*) What is the source of antipyrin? (*b*) Give its physiologic action. 7. What is incompatibility in medicine and what are the different kinds of incompatibility? 8. (*a*) What is the source of hydrastis canadensis? (*b*) Name its alkaloids. 9. Give the composition of lotio hydrargyri nigra, Tully's powder, hydrargyri iodidum rubrum, and liquor arsenii et hydrargyri iodidi. 10. (*a*) Name the official salts of bismuth. (*b*) Give their physiologic action.

GYNECOLOGY

1. State in detail method to be used in making examination of female generative organs. 2. Give etiology, symptoms and treatment of prolapse of the uterus. Also, give cause, symptoms and treatment of subinvolution of uterus. 3. Define rectovaginal fistula, and give treatment. 4. Name some of the more frequent causes of acute cystitis in the female and give treatment. 5. What is acute parametritis? Give treatment. 6. Name different varieties of uterine fibroids. Give symptoms and physical signs of each kind. Also state some other pathologic conditions that may develop on either variety. 7. What diseases may be mistaken for uterine-cervical cancer, and how would you make differential diagnosis? 8. What conditions may develop in the course of acute Neisser infection in the female that would be grave? How would you treat any one of these you may select? 9. Define pan-hysterectomy. State some of the conditions in which you would elect this procedure. Also state how you would prepare a patient for this operation. 10. Discuss fully ectopic pregnancy, and outline treatment.

SURGERY

1. Name in order of their virulence the bacteria of suppuration. 2. What is the difference between an acute abscess and a purulent infiltration? 3. Give the pathology and symptoms of the initial, the secondary, and the tertiary stage of syphilis. 4. Describe intravenous saline transfusion and give dangers of the operation. 5. Give definition of acute osteomyelitis, pathology, symptomatology and differential diagnosis between it and acute rheumatism. 6. Differentiate between trachoma and conjunctivitis. Give prognosis and treatment for trachoma. 7. State the avenues and possible points of metastasis of a malignant growth of the breast. On what symptoms may an early diagnosis of cancer of the breast be based? 8. In fracture of the upper third of the femur, what is the usual position of the fragments? What muscular action causes the same? In what position would you dress it, and why? 9. Under what conditions may a wound be closed without drainage? 10. Describe rodent ulcer. Name the structure in which rodent ulcer mostly develops, and give surgical treatment.

PATHOLOGY

1. Explain what influence short and prolonged hot and cold baths have on the blood. 2. What are crenated blood cells? 3. (*a*) Detail method of ascertaining, and what is the normal blood pressure? (*b*) What is the pathologic significance of a persistent high or low blood pressure? 4. What special cell would you find markedly in excess in spinal or pleural fluids of patients with tubercular or syphilitic infection? 5. (*a*) Name the various kinds of leukocytes. (*b*) Give the significance of a marked eosinophilia. 6. In examining urinary specimens, how would you differentiate renal cells from cells from the ureter or urethra? 7. (*a*) State which is the most reliable method of investigating the composition of gastric fluids. (*b*) Give technic and special diagnostic value of same. 8. Give the pathogenesis of rheumatism. 9. (*a*) What is the significance of acetone and indicanuria. (*b*) Give tests for each. 10. Name the remote pathologic conditions that may result from gonococcus infection in the male and female.

OBSTETRICS

1. Give the hygienic management of pregnancy, including diet, clothing, exercise, care of skin, kidneys, alimentary tract and breasts. 2. Give in detail how you would manage each stage of normal labor. State how you would prepare the patient and your own preparation. 3. Describe fully how the puerperium should be managed. 4. Give the different steps in the mechanism of labor in a left occipito-anterior position, and state in detail how you would apply forceps in a case of left occipito-anterior position, with vertex impaction in inferior strait. 5. Name the accidents which may occur to the mother in labor. Take any two and state treatment. 6. Give your management of a case of inevitable abortion at tenth week of gestation. 7. Name some of the more frequent diseases to which pregnancy predisposes. Take any two of them and state how you would instruct patient that she might avoid their development. 8. Give the premonitory symptoms of an attack of eclampsia. Describe an attack in detail and give treatment. 9. What are the indications for Porro cesarean section? Give detail steps of the operation. 10. State how you would manage the new-born child. What are the causes of still-birth, and what are the causes of asphyxia neonatorum? Give your method of treatment of the latter condition.

Ohio December Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the oral, practical and written examination held at Columbus, Dec. 8-10, 1914. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 32, of whom 31 passed and 1 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgetown University	(1913)	83.9
Northwestern University	(1914)	84.7, 85.3
College of Physicians and Surgeons, Baltimore	(*1914*)	*82.9*
University of Maryland	(1914)	88.5
Columbia University, College of Physicians and Surg.	(1914)	87.2
Syracuse University	(1912)	84.2
University and Bellevue Hosp. Med. College	(1914)	84.9
Cleveland-Pulte Medical College	(1913)	[illegible].9
Eclectic Medical College, Cincinnati	(1914)	75, 78.5, 79.7, 80.7, 81.5, 85.
Starling-Ohio Medical College	(1914)	75, 75, 77, 78.1, 79.2, 81.2.
Western Reserve University	(1914)	78.4, 80.1, 83.6, 85.9
Jefferson Medical College	(1914)	81.4, 88.8
Medico-Chirurgical College of Philadelphia	(1914)	84
University of Pennsylvania	(1914)	85.1, 88.9
University of Vermont	(1914)	77.7

FAILED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1913)	72.6

Book Notices

HANDBOOK OF PHARMACOLOGY. By Charles Wilson Greene, A.B., A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Cloth. Price, $3.50 net. Pp. 396, with 70 illustrations. New York: William Wood & Co., 1914.

The advance of biology and the development of medical pedagogy have gradually separated pharmacology as a representative of pure science from therapeutics, which represents an application of science to the cure of disease. Therapeutics must be based largely on pharmacology, but its conclusions must be largely indirect, because while pharmacology deals with the normal organism, therapeutics is applied to an abnormal organism which may react to the therapeutic agent in a manner different from the behavior of the normal organism. Further, pharmacology draws its facts almost wholly from animal experimentation, and hence arrives at the action of drugs on the human organism mainly by inference. In approaching the consideration of a book devoted to pharmacology, we must bear in mind that the scientific treatment of the subject demands that therapeutic inferences be subsidiary. Most teachers of the subject still aim to connect pharmacology with medicine, and most text-books have conserved their utility to practicing physicians by adding paragraphs or chapters on therapeutics. This has not always been entirely satisfactory, for there is seldom a clear statement of the exact indications of a remedy as compared with similar remedies, or of the phase of the disease in which the individual remedy is most useful. The more pharmacology is taught by full-time teachers as a laboratory subject, the more necessary will be its divorce from the teaching of therapeutics. In the first place, the students to whom it is taught have seldom that foundation in pathology and symptomatology which fits them for the study of the art of therapeutics. Even the practitioner often feels the want of definiteness and adaptation to the condition of the living patient in the therapeutic suggestions made in these text-books. Greene's Handbook attempts to conform to the distinction outlined above, and presents only matter suitable for the instruction of students in the principles of pharmacology. It is strictly a text-book for the student, and is not adapted to the needs of the practitioner unless he wishes to pursue pharmacology as a science. The idea of the book is to give attention to the action of drugs from the laboratory point of view, leaving to clinicians that part of the subject which deals with the clinical use of drugs. Thus a sharp distinction between these two phases of the subject is attempted. Drugs are classified partly according to chemical relations. Two great divisions are recognized: organic drugs and inorganic drugs. Subsidiary groups among organic drugs are formed according to some prominent action, such as depression or stimulation. The inorganic drugs are divided almost entirely on chemical lines. This book, like most text-books on pharmacology, devotes too little attention to the more general theoretical side of the subject; that is, to such matters as irritability, stimulation, depression, the mode of action of drugs, etc. These are the essence of pharmacology. By a thorough grounding in these fundamentals, the student may be expected to gain clearer ideas of the way in which he is to influence the organism in disease. In such respects also the human organism agrees more fully with the lower animals, so that inferences of similar actions are justified to a greater extent.

FOCAL SYMPTOMS IN GENERAL PARALYSIS. By C. Macfie Campbell, M.D., B.Sc., Associate Professor of Psychiatry, Johns Hopkins University, Baltimore. Paper. Price, $1.25 net. Pp. 138, with 10 illustrations. New York: G. E. Stechert & Co., 1914.

This study, first presented as a thesis to the University of Edinburgh for the degree of M.D., in July, 1911, contains much valuable material and deserves to appear as a separate brochure. After giving a brief historical summary of the subject of general paresis, and paying due attention to the histopathologic researches of Nissl and Alzheimer, as well as to the introduction of the cytologic examination of the cerebrospinal fluid, the author concludes that the diagnosis of general paresis must be made only after careful macroscopic and microscopic examination according to the most modern methods. Accordingly, he makes use of nineteen cases thus studied and classifies them in four groups. In Group 1 he places cases of general paralysis with focal symptoms on the basis of vascular disorder. Group 2 treats of the cases of general paralysis with focal symptoms on the basis of localized severity of the process of general paralysis: Lissauer's atypical general paralysis. Group 3 contains the cases of general paralysis with focal symptoms of traumatic origin. Group 4 includes the cases of general paralysis with focal symptoms which are correlated neither with vascular disorders nor with localized severity of the process of general paralysis. Because of the diagnostic difficulties which the atypical cases of general paralysis present, among which must be included the large number of cases of general paralysis with focal symptoms, the latter group deserves intensive study, not only from the point of view of differential diagnosis, but also for the light which it throws on the evolution of the disease. While the author reaches no definite conclusions, his thesis is worth while perusing, as the case histories are given a large space and an attempt is made to correlate these with the pathologic findings according to modern methods of investigation.

THE BRAIN IN HEALTH AND DISEASE. By Joseph Shaw Bolton, M.D., D.Sc., F.R.C.P., Professor of Mental Diseases, University of Leeds. Cloth. Price, $5 net. Pp. 479, with 99 illustrations. New York: Longmans, Green & Co., 1914.

This work is practically a collection of papers loosely bound together by more or less discursive and some polemic discussion. The papers are so loosely bound in places that extensive verbatim repetitions occur. The work is divided into two parts. The first, which deals with cerebral function in the normal brain, is the result of laborious and careful studies. It calls attention to a field of research but little explored, and makes accessible much valuable data on the micrometry of the cerebral cortex. The rest of the work consists of a short general review of psychology and over 300 pages devoted to cerebral function in mental disease. The author divides practically all mental diseases into amentia, or deficient neuronic development, and dementia, or neuronic degeneration. The further classification of these two groups is cumbersome and confusing, and is a decided step backward in an already unsatisfactory chapter in psychiatry. The portion of the work devoted to psychology, especially that treating of emotion, is not beyond criticism. The morbid anatomy of mental diseases, in the light of recent research, is poorly dealt with; the symptomatology of mental diseases is somewhat rambling and does not tend to make his classification convincing. The book has the value of a pile of reprints of articles by an active, earnest and thoughtful worker; a value which can be accurately determined only by one already familiar with the subject treated.

THE HEART IN EARLY LIFE. By G. A. Sutherland, M.D., F.R.C.P., Senior Physician to the Hampstead and North-West London Hospital. Cloth. Price, $2. Pp. 207. New York: Oxford University Press, 1914.

The book is divided into three sections: cardiac disturbances (functional); borderland between functional disturbances and organic disease of the heart, and organic heart disease. Many of the current views about disturbances and diseases of the heart in childhood and youth are founded on inductions and inferences; but the signs, symptoms, prognosis and treatment are often different from those in later life. Under the various sections the various disturbances and diseases of the heart in early life are discussed, accompanied by case reports, polygraphic tracings and often also the electrocardiogram. The author, being a pupil of Mackenzie, recommends the polygraphic method as the simplest and most exact method of studying the heart. The pathology of the heart is somewhat neglected, and no mention is made of experimental endocarditis as produced by Rosenau. The book is up to date, and the tracings are good and warrant the attention of the pediatrician.

Miscellany

The Treatment of Drug Addictions

The Harrison antinarcotic law, which became effective March 1, deprived many addicts of their drug and has caused much suffering. Numerous methods have been devised to wean the patient from the drug habit.

THE LAMBERT-TOWNS METHOD

The Lambert (sometimes referred to as the Lambert-Towns) method of elimination and rapid withdrawal has proved quite satisfactory. This method has been described by Dr. Alexander Lambert, in The Journal, but in view of the numerous recent inquiries in regard to it, the essential details are here repeated. This must not be regarded as a cure for drug habits, but is intended to obliterate the terrible craving which these patients suffer when deprived of their accustomed drug. Vigorous elimination is the most important feature of the method, and is secured by the administration of compound cathartic pills and blue mass or some other form of mercury. The other essential measure is the persistent use of the following belladonna mixture:

		Gm. or c.c.
℞	Tincturae belladonnae (15%)	62
	Fluidextracti xanthoxyli	
	Fluidextracti hyoscami, āā	31

With these two prescriptions as a basis the following steps in the treatment are to be observed:

A patient addicted to morphin is given five compound cathartic pills and 5 grains of blue mass. Six hours later, if the bowels have not moved, a saline is given. After three or four abundant movements of the bowels (and not until then) the patient is given by mouth or hypodermically, depending on his habitual method of taking the narcotic, in three divided doses, at half-hour intervals, two-thirds or three-fourths of the total daily twenty-four-hour dose of morphin or opium to which he has been accustomed. Observe the patient closely after the second dose, when about half the total twenty-four-hour dose has been taken. A few patients cannot comfortably take more than this amount. Six drops of the belladonna mixture dropped with a medicine dropper are given in capsules at the same time as the morphin or opium, and should be repeated every hour for six hours. At the end of six hours the dose of the mixture is increased 2 drops. This dose is then continued at hour intervals for another six hours, when the dose is increased by 2 drops, and again continued at the same interval, increasing the dose each six hours until it reaches 16 drops. It is then continued in this amount, but is diminished or discontinued at any time if the patient shows belladonna symptoms such as dilated pupils, dry throat or redness of the skin, or mental symptoms. It is begun again at reduced dosage after these symptoms have subsided. Unusual sensitiveness to belladonna will usually be manifest in six or eight hours, when the dose can be cut down 2 to 4 drops and then raised by 1 drop every six hours. On the other hand if after twelve hours the 16 drops have not produced dryness of the throat the dose may be increased to 18 or 20 drops every hour until the dryness occurs, and then the amount may be reduced.

At the tenth hour after the initial dose of morphin five compound cathartic pills and 5 grains of blue mass should again be given. If they have not acted in six or eight hours, give some vigorous saline. When the bowels have acted vigorously, which is usually at about the eighteenth hour, give half the original dose of morphin; that is, one-half or three-eighths of the original total daily dose. The belladonna mixture is still continued, and ten hours after the second dose of morphin, five compound cathartic pills and 5 grains of blue mass are again given, if necessary followed by a saline seven or eight hours later. After the bowels have acted thoroughly, at about the thirty-sixth hour, the third dose of morphin is given, which should be one-sixth or three-sixteenths of the original dose. This is usually the last dose of morphin. Ten hours after the third dose of morphin, the forty-sixth hour, again give the five compound cathartic pills and 5 grains of blue mass, followed seven or eight hours later by a saline. After the bowels have moved thoroughly a bilious green stool should be expected and after its appearance 2 ounces of castor oil should be given to clear out thoroughly the intestinal tract. It is sometimes found necessary to continue the belladonna mixture over one or two additional cathartic periods before giving the oil. After giving the last dose of compound cathartic pills, and before giving the oil, the patients will have their most uncomfortable time, and may be relieved by 5 grains of codein hypodermically. This should not be kept up long after the oil is given. Beginning about the thirtieth hour the patients should be given strychnin or digitalis or both every four to six hours.

Withdrawal pains can sometimes be relieved by ergot and strychnin, by massage, sodium salicylate or by some salicylic compound combined with coal tar products such as antipyrin, acetphenetidin or pyramidon. Indiscretions in eating or exercise two or three days after stopping the drug may cause a recurrence of the withdrawal pains, due to exhaustion or indigestion. This trouble will quickly disappear without narcotics.

Insomnia may be troublesome and may be treated by bromids, chloral or other hypnotic. Lambert's experience is that veronal acts badly in these cases. Muscular fatigue is the best hypnotic, and regular exercise may be carefully taken within a week after the discontinuance of the drug. It is important to build up the patients physically.

Morphin and alcohol addicts should be treated for the morphin addiction and the alcohol may be tapered off gradually. The gastritis usually found may cause difficulty in retaining medicines or food. Sodium citrate in doses of 5 to 10 grains every hour will relieve this condition, and if necessary may be supplemented by 10 to 20 grains of cerium oxalate.

Cocain and morphin addiction make a difficult combination to treat, but the procedure should be that for morphin, with plenty of strychnin or other stimulant. The cocain should be withdrawn at once. The patients may become delirious and unmanageable after the effect of the morphin wears off.

The cocainist should be treated like the alcoholic, by withdrawing the cocain, giving the belladonna mixture every hour, increasing as with the morphin patients, and the five compound cathartic pills and 5 grains of blue mass, the first doses being taken simultaneously. At the end of the twelfth hour repeat the cathartics and the saline, and likewise at the twenty-fourth and thirty-sixth hours. After the last cathartic the bilious stools will appear, and at the forty-fourth or forty-fifth hour the castor oil is given. Unless the bilious stools appear it may be necessary to continue the treatment over one or two more cathartic periods.

Though each patient presents an individual problem, Lambert insists that the plan must be adhered to closely. The cholagogue action of the mercury is essential and the persistent repetition of the doses of the belladonna mixture so as to produce the physiologic effect is required to prevent the craving for the drug.

PETTEY'S METHOD

The method of Pettey in morphin addiction also employs active purgation as one of its principal features, with sedation in the form of scopolamin after the drug is withdrawn, with large doses of strychnin in the purgative to increase peristalsis and also afterward for its supporting effect. The steps in the treatment may be described as follows:

On the day treatment is begun the patient may take his usual doses of the drug. He is required to abstain from dinner and supper, and at 4, 6, 8 and 10 p. m., he is given the following purgative prescription divided into four capsules:

℞	Calomel	
	Powdered Extract Cascara Sagrada āā	gr. x
	Ipecac	gr. i
	Strychnin nitrate	gr. 1/4
	Atropin sulphate	gr. 1/50

No opiate and no nourishment are to be given the following morning until the bowels have moved thoroughly. In order to insure the movement of the bowels, six or eight hours after giving the last purgative capsule, 1/20 grain of strychnin should be given hypodermically and a half hour later 2 ounces of castor oil or a bottle of citrate of magnesia. Both the strychnin and the oil or saline should be repeated every two hours until the intestinal canal has been thoroughly emptied, and no morphin should be given during this time. The thorough elimination will afford relief from the discomfort of abstinence from the drug and this should be taken advantage of to postpone the morning dose of the narcotic. When the demand for the drug becomes insistent it may be given in not more than one-half or two-thirds the usual dose at the same intervals at which the drug was formerly taken. After the purgation liberal feeding may be allowed until within six or eight hours before the next purgative course. This should be forty-eight hours from the beginning of the first purgative course, and may be more or less active, according to the effect obtained from the first, but none of the purgative ingredients should be left out, and large doses of strychnin are insisted on. The morphin in reduced dose, sufficient to keep the patient comfortable, may be continued until the last dose of the second purgative course, when the drug is to be discontinued and no other opiate should be given. Six or eight hours after the second purgative course has been completed, strychnin hypodermically and the oil or saline should be repeated as after the first course, until free bowel movements occur. The patient will now be able to go longer before feeling the effect of abstinence from his morning dose, especially if he remains in bed, which he should do. Within six or eight hours after the time for the morning dose the patient's demand for relief from discomfort should be met by giving, instead of the opiate, 1/200 grain scopolamin hypodermically, and this should be repeated in thirty minutes. If the patient has not fallen asleep after the second dose a third may be given in a half hour or hour, which may be of the same size or double the previous dose, depending on the effect. This will produce either sleep or mild intoxication, in either of which conditions the patient will not suffer. Immediately he awakes another dose of scopolamin, 1/200 grain, should be given, and repeated to keep up a mild belladonna intoxication and to maintain the patient free from pain. This impression from the scopolamin should be kept up for thirty-six to forty-eight hours after beginning it, and then should be discontinued. During the scopolamin period and for twenty-four hours afterward, 20-grain doses of sodium hyposulphite may be given every two hours, which will supplement the effect of the calomel purgative and the patient will have small, bilious stools, unattended by colic or griping.

Convalescence will be reached on the fifth or sixth day and no further medication is indicated as far as the addiction is concerned and the patient will be comfortable. Deficient heart action during or after treatment may be treated by spartein sulphate in doses of 2 grains every four to six hours.

JENNINGS' TREATMENT

The treatment of Oscar Jennings consists in giving dionin in place of the morphin, accompanied by spartein sulphate, the doses of dionin being rapidly reduced as conditions warrant. Hygienic measures and good feeding are also employed with vichy, stimulants, cola and other drugs to meet indications. He lays stress on the reeducation of the patient in self-control.

THE METHOD OF SCELETH

This method was described first in THE JOURNAL last week, March 13, 1915, p. 927.

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LITERATURE ON HARRISON LAW

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Harrison Antinarcotic Law, editorial, THE JOURNAL, March 13, 1915, p. 911.

Medicolegal

Physician Entitled to Recover from Third Party for Services

(Hertel vs. Cuba (Mo.), 171 S. W. R. 565)

The St. Louis Court of Appeals of Missouri affirms a judgment in favor of the plaintiff, who commenced an action against the defendant, before a justice of the peace, filing a written statement in which it was set out that the defendant was indebted to the plaintiff in the sum of $125 for medical services rendered by the plaintiff to one Langford, from June 2, 1910, until on or about Sept. 3, 1910, "at the special instance and request of the defendant," and that the services so rendered by the plaintiff were reasonably worth the sum of $125. Alleging demand and refusal to pay, the plaintiff asked judgment for that amount and costs. The court says that it does not think the point well taken that the petition did not state facts sufficient to constitute a cause of action against the defendant. It was argued that the petition or statement did not contain an averment of an express promise to pay, but rested on an implied contract, and that neither had been proven. But it was admitted that the statement set out facts on which an implied promise might arise, and there was evidence not only tending to sustain this but also evidence tending to show the services were rendered under an express promise by the defendant, made before their rendition, that he would pay the plaintiff for them. Over and above that, even if this statement was defective, it was not so fatally defective that it would not sustain a judgment, and it was entirely sufficient after judgment. Nor was there error in the exclusion of a statement filed with an insurance company by Langford, in which, after setting forth the facts of the accident as far as he knew them, he stated that he thought he was entitled to his lost wages and doctor's bills, and that he "makes claim for $500." To this he added: "My doctor's bills amount to $150." There was no evidence whatever that this statement was brought to the knowledge of the plaintiff, so it was inadmissible against him for any purpose whatever. So, too, it may be said of evidence attempted to be introduced to the effect that Langford had in point of fact been paid by the insurance company for his doctor's bills, there being no pretense that the plaintiff had been paid by any one for his services rendered in attendance on Langford. Again, it was in evidence that there was some discussion between the defendant and the wife of the injured man, Langford, as to the insurance company being liable for "first aid" services, but there was not a particle of evidence bringing knowledge of this home to the plaintiff, while there was affirmative evidence of an employment of the plaintiff by the defendant at the outset, and a promise on the part of the defendant to pay for the services so rendered, which did not make a case for an instruction limiting the plaintiff's recovery to a reasonable sum for the first or emergency treatment if the defendant agreed to pay no more.

Concealment of Tuberculosis Ground for Annulment of Marriage

(Sobol vs. Sobol (N. Y.), 150 N. Y. Supp. 248)

The Supreme Court of New York, Special Term, New York County, holds that the fraudulent concealment of tuberculosis by a person entering into the marriage relation is ground for the annulment of the marriage. The court says that no case was brought to its attention, nor was it able to find any, which directly determined the question as to the facts in this case being sufficient to move the court to grant a decree. It was established that the defendant was treated for tuberculosis prior to the time of his marriage and knew that he was suffering from the disease. Subsequently he was married to the plaintiff, and she testified that he represented to her prior to the marriage that certain symptoms which he displayed were the manifestations of a cold. It furthermore appeared that within a few days subsequent to the marriage the defendant's condition was such as to require the attention of a physician, who then diagnosed his case as tuberculosis, and that thereafter the plaintiff no longer continued to cohabit with him. There were no children of the marriage. After the marriage the defendant continued to show symptoms of tuberculous trouble, and on the advice of his physician went West for the purpose, if possible, of becoming cured, although the physician testified that in his opinion the defendant was incurable. The plaintiff said that had she known of the actual facts of his condition they would have precluded her from entering into the marriage. The court thinks that there was a misrepresentation of a fact of sufficient weight for the courts, from the standpoint of public policy, not only because of its possible effect on one of the contracting parties, but also on their posterity, to declare the contract void.

In numerous cases the courts of New York and other states have held that the fraudulent concealment of a venereal disease is sufficient ground for the annulment of the contract of marriage on the ground of fraud. The view which the courts have adopted is that the presence of such a disease is not only liable to cause contagion from the marital relation, but is also fraught with danger to the offspring of such union, and is a disease involving disgrace in its contraction and presence. Tuberculosis is not a disease which so closely affects the marriage relation as a venereal disease. If, however, it is such a disease that, through the close tie of the marital relation, grave and disastrous results from infection may be caused to the other party, and possible evil consequences to the offspring, it is sufficiently grave to bring it within the purview of the rule applicable to venereal disease.

The court deems it proper for it, in view of the widespread prevalence of tuberculosis and the disastrous consequences to those who suffer from it, to take judicial notice of its characteristics for the purposes of this discussion. There can be no doubt that it is a disease of an infectious character, and that close association with a person afflicted with it, unless attended by great care, occasions danger of infection to those coming into close contact with such person. While it may be that such care is possible in the marital relation, nevertheless the court does not think it should be the policy of courts to sustain the obligations of a union which would entail the burden and danger that would follow under the circumstances, and where there can be no sure method of preventing an infection. Furthermore, there is little doubt that the offspring of a person afflicted with tuberculosis, while not born infected, are born with a strong predisposition to becoming infected, and succumb with greater readiness to its ravages.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
American Association of Immunologists, Washington, May 10.
Amer. Assn. of Pathologists and Bacteriologists, St. Louis, Apr. 2-3.
American Gastro-Enterological Association, Baltimore, May 10-11.
American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
American Neurological Association, New York City, May 6-8.
American Orthopedic Association, Detroit, May 6-8.
American Urological Association, Baltimore, April 13-14.
Arkansas Medical Society, Little Rock, May 3-6.
Association of American Physicians, Washington, May 11-12.
Conf. of State and Prov. Boards of North America, Washington, May 14.
Florida Medical Association, De Land, May 12-14.
Georgia Medical Association, Macon, April 21-23.
Iowa State Medical Society, Waterloo, May 12-14.
Kansas Medical Society, Kansas City, May 5-6.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Medical Society of the Missouri Valley, Omaha, March 25-26.
Mississippi State Med. Association, Hattiesburg, May 11.
Missouri State Medical Association, St. Joseph, May 10-12.
Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
New York State Medical Society, Buffalo, April 27-29.
North Dakota State Medical Association, Bismarck, May 12-13.
Ohio State Medical Association, Cincinnati, May 4-6.
Oklahoma State Medical Association, Bartlesville, May 11-13.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.
Texas State Medical Association, Ft. Worth, May 4-6.
West Virginia State Medical Association, Huntington, May 12-14.

ASSOCIATION OF AMERICAL MEDICAL COLLEGES

Twenty-Fifth Annual Meeting, held Jointly with the Federation of State Medical Boards, Chicago, Feb. 17, 1915

The President of the Association, DR. ISADORE DYER, New Orleans, in the Chair

A list of the officers elected was published in THE JOURNAL, Feb. 27, 1915, p. 754.

Executive Business

The Committee on Medical Research was instructed to place its services at the disposal of the Committee on the Defense of Medical Research of the American Medical Association, and work in cooperation with that committee.

The University of Tennessee, College of Medicine, Memphis, was admitted to membership.

A representative was appointed to serve on a joint committee with the Council on Medical Education of the American Medical Association for the purpose of collaborating with Mr. Kendric C. Babcock, formerly specialist in higher education of the United States Bureau of Education, in formulating a detailed report setting forth the best methods of administering the entrance requirements of medical schools, and the adjustment of such requirements to existing conditions.

The Medical Career: Address of President

DR. ISADORE DYER, New Orleans: In methods of teaching and equipment, all colleges have materially improved. The scientific development of all of the component departments of the schedule has necessitated better teachers, with special training in many branches needing more attention. The result is now evident. The college course is so crowded that there is not sufficient time to satisfy the various departments. More time will soon be needed. The plan or scope of the education necessary to qualify the intending practitioner in medicine is still undetermined. The cultural advantage of previous college training is generally conceded and the student who has finished a college course will derive most from his medical course. Are we satisfying our obligations, however, in making standards for the exceptional instead of for the average student? In the discussion of standards, the demand has usually been for better and higher training; the student has seldom been discussed. Formerly, the reasons for engaging in the study of medicine were mainly through an inspiration to follow medicine because of its traditions, although medicine has never suffered from such students. Formerly, about 40 per cent. of the graduates in medicine quit within a few years after leaving the medical school. To-day higher requirements make the intending medical student weigh more carefully the question of his calling. No one of the professional careers offers a harder road, or is attended with a greater outlay in time and in money than that of medicine. Even when the student is through he may see the need of more experience before he accepts the responsibility of his profession. The practice of medicine brings in slow return, depending on location and opportunity. The exceptional physician may grow well-to-do through fortunate investment, but outside the larger cities few get rich. For scientific interest the field in medicine is large, and the reward comes in achievement, but the compensation otherwise is negligible. Problems develop for laboratory man as well as clinician, and their solution is worth while but not profitable. The lines of least resistance have appeared to be in the specialties, wherein larger fees may be demanded and more or less ignorance disguised in technic.

Efficiency is, after all, the chief purpose in medical education. But when the student has satisfied the required courses, has he had the best medical education? The examination of any student body at any part of the present accepted curriculum finds most of the students rather half baked, and with a corollary complaint from most of the teachers that courses are not long enough to give the student necessary instruction. The so-called special subjects are either neglected, or discounted with the suggestion that the student may take them up after he is graduated; in other words, he may make his education as a doctor complete after he has become a doctor. We are really at the point at which the student and his training should be reconsidered. Our present plan is inclined to make the present graduate a predestined specialist. The curriculum should be broadened so as to prepare the student for general practice, with enough training in special branches to permit the care of ordinary cases. The abandonment of the field of general practice has been a natural outcome of a deficient general training, and the deficiency has resulted from an obvious lack of time in the schedule provided in a four-year course. In any readjustment, the interests of the student should be carefully considered.

Classification of Medical Colleges

This paper, by DR. HENRY S. PRITCHETT, New York, appears in full in THE JOURNAL (p. 961, this issue).

DISCUSSION

DR. N. P. COLWELL, Chicago: The Council on Medical Education has long since learned to differentiate between criticism which was sincere and that which was not. There have been many criticisms, back of which the interests of those making them were evident. There is no question, however, of the sincerity of the criticism made to-day, and that sort the Council always sincerely appreciates.

President Pritchett has expressed a doubt regarding the wisdom of the higher entrance standard in the South. The development of the high schools of that section of the country has been and is one of the most important problems confronting the Southern medical schools. The Council believes the enforcement of the one year of college requirement should not be further delayed, because (1) the Council has fixed a standard for the entire country and has tried to obliterate sectional lines; (2) colleges of the South no longer desire special concessions, but ask to be judged on the same basis as all other colleges; and (3) if the high schools of the South are imperfect, is it not all the more reason why students coming from them should be required to take the one year of extra work, even though it may not be at first as perfect a college year as is desired? Again, the effect of the requirement depends on the manner in which it is enforced. In response to the question, "Would not the requirement of a year of college work, with the strict understanding that it be preceded by a four-year high school education, or its actual equivalent, help the high schools in the South?" the answers from leading educators of the South were decidedly in the affirmative. The chief difficulty even in some of the universities in the South has been the lack of efficient methods of administering entrance requirements. That is a hindrance to progress both in the high schools and in colleges. If the medical schools make sure that students admitted have the four year high school education, before any college work taken may be counted as such, it would be a positive aid in the development of the high schools and would induce the small colleges to require at least fourteen units of secondary school work for admission or not be recognized by the medical schools. The one year requirement is clearly a temporary measure, and the preliminary sciences can better be completed in a two year course.

All of you remember the state of affairs existing before the work of classifying colleges began. President Pritchett says it is much more difficult to differentiate between high grade schools; but that difficulty was not so apparent ten years ago. On the other hand, when all medical schools become high grade it will not be necessary to classify them. When the first inspection was made by the Council during 1906-1907, the inspection in many colleges could easily be made in ten or fifteen minutes. At that time, there were no standards and no one knew what the average condition was. In the second inspection, however, we had a standard based on the average condition in all colleges of the country. That average was far below the ideal, since the conditions of medical education throughout the country were so low. Following the second tour of inspection, however, on the basis of that national average all the medical colleges in all sections of the country were graded. In that classification the medical schools were divided into three groups—A, acceptable, B, doubtful, and C, non-acceptable. It was impossible at that time to divide the colleges into two groups, of acceptable and non-acceptable, as suggested by President Pritchett. It was necessary to provide a third group for those which were doubtful. This intermediate group contained colleges which had good reason for existence, and it was only right to give them a chance to make the changes needed to bring them into the first group.

As to the standard by which the colleges were measured, although it was not one which could be used satisfactorily to differentiate between the highest grade colleges, it met the needs of the time. No one item could be given, on the basis of which, taken alone, medical schools could be fairly classified. One item of the Council's standard was the record of the examination of the graduates of the various medical colleges by the state licensing boards, and such records were based on figures taken from official reports. Nevertheless, to have classified the colleges on that item alone would have been misleading and inaccurate. For example, numerous instances could be given of low standard medical colleges which, by having all their graduates examined in a single state where the examinations were easy, obtained 100 per cent. of successes, while in the same year Johns Hopkins and other high grade medical schools, which had graduates examined in many states, had a few failures, giving them ratings of from 85 to 95 per cent. Again, no matter how detailed the standard may be, much must be left to the judgment of an experienced inspector. In a certain state, medical colleges are required by the licensing board to possess a certain specified amount of equipment, and one of the medical schools in that state was found to have purchased the apparatus required, but no one was using it for teaching. So, in addition to noting the possession of buildings, laboratories, equipment, library and museum, the inspector must find out to what extent the college is using them in the instruction of medical students. Therefore, unless wisely administered, even the most elaborate and detailed standard of measurement would not result in a reliable classification.

President Pritchett is correct when he says that the standard used is not ideal. It is the best we have, however, and has brought results. Even if the same outline were followed, moreover, I do not believe any educational or inspecting agency could have done the work as effectively as has the Council on Medical Education. Why? Because of the abundance of information constantly being received at the headquarters of the American Medical Association, of which the Council is a permanent committee. The Association publishes a directory, and for that purpose obtains a lot of detailed information regarding all physicians; from the medical colleges information is obtained regarding students and graduates, and from state boards information is obtained regarding examinations showing what physicians have been licensed. In fact, the Council is conducting a clearing house through which a great deal of reliable information is available which cannot be obtained by inspections. Having all that information, the Council is in better position, perhaps, than any other agency to carry on this work effectively.

The strongest point in the Council's position is that it does not possess and has never claimed legal authority. Its power comes from publicity, from telling the truth, so far as it has been enabled to know the truth. It is the power of publicity and not legal force that is doing the work.

The Council knows its ratings have been lenient. The statement has been repeatedly made that if we have erred, it has been on the side of leniency. Each succeeding classification, nevertheless, has been more reliable than its predecessor. The Council has endeavored to avoid extremes. The whole campaign has been constructive, and the standards have been such as would lift up and not force out of existence any deserving schools.

It is true that certain schools in Class A cannot compare with the highest and strongest institutions, such as Harvard and Johns Hopkins. The Council has not expected or attempted to bring all schools on as high a grade as Johns Hopkins or Harvard, but has tried to bring the medical schools in the lower classes up to at least the level of the lowest in Class A.

Dr. Arthur Dean Bevan, Chicago: I agree with President Pritchett on the subject of classifications, which, at most, are temporary expedients. The first classification made by the Council was crude, but productive of much good. It was based on the records of graduates made in state licensing examinations. The second classification was based on a sort of civil service examination of the school on ten points, making a possible hundred. That classification justified itself. The same is true of succeeding classifications. The Class A plus was introduced to indicate the acceptable schools, which, in addition to having complete facilities for teaching medicine, required a year or more of premedical science for admission. This year, inasmuch as eighty-four schools out of about ninety-eight which still exist now require this premedical preparation, the A plus group has automatically eliminated itself. For the present the classification which will secure the best results is the A, B and C classification. The A class includes medical schools which the Council believes are worthy of recognition by the state boards of the country; the C group consists of the non-acceptable schools, and the B group of the doubtful schools.

Dr. J. M. Baldy, Philadelphia: In my state we have definite fundamental principles on which we act and every action taken is based on the desire to reach a fixed point, which we have set as our goal. Most of us are practical men. We recognize two forces at work, educators and administrators, and we are inclined to the view that for the time being, administration takes precedence. President Pritchett said that we should have waited for the high schools of the South, and should not have brought pressure to bear on them, but should have exercised patience. We waited so long we got tired of waiting. We cut loose from the educators and went after the results in our own way. Now, the high schools in the South are on a four year basis. Administrators have accomplished in three years what educators were unable to accomplish in generations. President Pritchett complains of the premedical year for the purpose of furnishing college grade sciences for the preliminaries of medical education. He asks that we do not take away from the colleges and universities that which has always belonged to them. In Pennsylvania we asked fifteen or twenty college presidents whether they would give our boys the opportunity to get in one year this scientific work preliminary to medicine, but they did not do it. The outcome was the premedical year, given in the medical school. Those of us who are working for practical ends and are getting results are in the right.

Dr. H. D. Arnold, Boston: President Pritchett can come here and say some pretty plain things to you which the Council is not in a position to say. President Pritchett is an eminent man in education, an expert, and impartial. The Council is composed of physicians and may be accused of being prejudiced; therefore, President Pritchett's attitude to-day is helpful, in that he was able to say a few things which the Council could say with less grace. He told you that a definite classification of colleges is practically impossible. Perhaps, therefore, you will be a little more lenient with the Council if it does not make a perfect classification. Our classifications are steps in advance and temporary. That is all we claim for them. President Pritchett's criticism of the ten items taken as a basis for classification is fair, one which every member of the Council recognizes. On the other hand, that classification has been educational as well as for the purpose of fixing standards. Perhaps we gave some items an exaggerated importance, but this emphasis has resulted in much-needed improvement. President Pritchett brings up the question of a permanent basis of classification. Perhaps we are ready for it. I am not quite so optimistic as he is. He offers three groupings of medical schools, and the Council is grouping them into three classes. We differ only as to where we should draw the lines between the different classes. He has not discussed the practical application of these divisions as regards the state boards. The Council is taking into consideration the practical application of its classifications. One other element which he introduced is ideal, but of a type that the Council has hesitated to apply, namely, the great importance laid on the estimation of the quality of the instructors. No rule or measurement can be applied to the personal element of instruction. It is liable to the charge of unfairness, since it must be based on personal estimate.

Dr. J. W. Holland, Philadelphia: The age at which a medical graduate begins the business of life should be considered by practical men. In this country the average age is 28 or 29, while in England it is 25 or 26. In Germany it is 25. Something is wrong with the system of education which postpones the bread-winning period. The natural outcome of this feeling has been that some universities have reduced their preliminary requirement of a college degree down to two years of college work. We must utilize our time and not take two years to do what can be done in one year. The law in Pennsylvania was fixed at a year of science preparation in chemistry, physics and biology. The General Medical Council of Great Britain has never conceded that supervision of preliminary instruction in chemistry, physics and biology is the concern of any other body than the General Medical Council. In Canada it is viewed in the same light. A number of American medical schools have the premedical year, and it is the experience of some of them that the students who get their physics, chemistry and biology in that year in the medical school are quite as well advanced in preparation for medical study as those who get the same subjects during two years in a literary college.

President Pritchett, New York: I wish to express my appreciation of the courtesy and friendliness with which the Council has received my remarks. Just one other word: The word "equivalent" is a powerful word in medical education. It is the translation of the word "equivalent" that enables a man to get the right number of credits on pretty nearly any requirement that you can set up. I do not believe with Dr. Holland that the English student gets any such preparation as an educated man whose heart and mind are trained as is to be obtained in a modern college, with all its frailties and faults. But I do heartily agree with him that we have been getting men into medicine too late. When a man gets through college at 23, goes into the medical school for four years, spends a year or two in a hospital, that brings him out absolutely too late. No nation can stand that sort of delay in getting men into practice.

Some Fallacies in the Argument Against Full-Time Clinical Instruction

Dr. M. G. Seelig, St. Louis: The plan that full-time clinical instructors are to displace all teachers who are private practitioners has the advocacy of no one. The varying character of clinical material will always make it both advisable and necessary for the university to offer place and preference to the properly qualified clinical teacher, irrespective of his affiliation with private practice. The advocates of the full-time instructor should never, even implicitly, subordinate the teaching value of the properly qualified private practitioner. Nor is there any important and essential variance of principle in teaching the clinical phenomena of disease, and in teaching function and structure or aberrations of both, in the laboratory. If students can learn to affirm or deny conclusions, either by proper process of reasoning or by the direct comparison of objects to ideas, the discipline of their medical education has been fruitful. And the process by which they should be taught to form proper judgments is exactly the same in the hospital ward as it is in the laboratory. In both places the student is taught certain fundamental truths from which to reach certain definite conclusions. In so many hospital wards and clinic rooms the student is taught to know, rather than to think, which has made it appear that clinical teaching is separate and distinct from fundamental teaching. Clinicians have been inclined to introduce this notion of the subtle, specific teaching value of private practice as something to conjure with in the realm of medical education. The plan for full-time clinical instruction contemplates developing the principles of practice in their most utilizable form, namely, from a variety of clinical material, intensively correlated and studied and housed under one roof. The plan for full-time clinical instruction contemplates the full realization of the intimate relationship between teaching medicine and practicing medicine, and not the injudicious mixture of private practice and teaching. Between the spirit of practice and the spirit of teaching there is no essential ethical difference, but between the demands of practice and the demands of teaching there is a variation so pronounced as practically to preclude the proper performance of both these functions by the same individual. The full-time plan, therefore, rests on this very rational conception of the case and implies absolutely no measure or comparative worth between the vocations of practitioner and teacher. Those who favor the plan of full-time clinical instruction are influenced in no small part by the hope that the properly qualified clinical teacher will foster, stimulate and direct scientific clinical research of a higher order than is commonly produced at present. To encourage scientific clinical research, therefore, the clinical teacher must be provided with an environment as favorable as that of the fundamental teacher.

DISCUSSION

Dr. William H. Welch, Baltimore: Some laboratory men are opposed to the plan for full-time clinical teachers: many clinical men, particularly of the younger generation, are enthusiastically in favor of it. The opposition comes largely from those who will be affected by the plan. As regards the German situation, it has become a matter of very serious discussion because, for instance, the surgeons in the German universities are establishing their own private institutions. It is wrong, and they know it is wrong. We cannot any longer look on Germany as our ideal in this regard. I myself feel that it is a great advance reform in methods of medical education. I believe it is one of the things that is going to put our American medical schools in the lead.

Dr. Walter L. Bierring, Des Moines, Iowa: There has been a fear that this new departure represented an attempt to displace the more established methods of clinical teaching; that it would tend to sacrifice the human element, and closer contact with the profession which has always been regarded as so essential. On the contrary, the proposed plan is to be considered as an aid to clinical teaching, and in that sense as a distinct addition to our methods of medical education.

Dr. Arthur Dean Bevan, Chicago: The Council is convinced of the necessity for the reorganization of clinical teaching along the right lines. Three solutions might be considered. The first is the German solution, represented by such clinical teaching as has been done by Kocher, Mueller, von Eiselsberg and others, where the man is a university teacher who does a limited amount of practice. The second solution is the Brigham solution, adopted by Dr. Cushing and his associates in the Peter Bent Brigham Hospital. All of the teacher's work is done under one roof. He has no consultations outside of the hospital. People who desire to see him must go to the hospital. A limited number of private beds are set aside, and the clinician takes care of a certain number of private patients in these beds with the same assistants and laboratory workers that he uses in his clinic. One of the most important clinics in this country is given by a man who often has as high as twenty-five private patients in his service at one time, and a large number of them are used for clinical instruction, and are very glad to be so used. A patient who pays a thousand dollars to his doctor may be quite as valuable a unit in a clinical research as the patient who occupies a ward bed. The third solution is the one presented by the General Education Board. I am quite in sympathy with the general plan, but they have introduced an error which would not have been introduced if the plan had been devised by men who were familiar with the clinical work. That error is the introduction of a clause permitting that man to do private practice, with the understanding that the fees from that practice go not to himself, but to the department of the university. The Council on Medical Education is not taking a controversial attitude in this matter, but is going to use all its influence to develop the reorganization of clinical teaching on the right lines.

Minimum Expense of Maintenance of First Two Years of an Acceptable Medical School

Dr. F. C. Waite, Cleveland: The cost of each of the laboratory departments falls under three general heads: salaries, maintenance and additions to equipment. Aside from the building and fixed furniture, the movable apparatus for each laboratory sufficient to care for the teaching of fifty students in a class is not far from an average of $5,000 per laboratory. The figure of $25,000 for five laboratories is conservative. To this should be added at least $10,000 for a working library, and teaching collections, especially in anatomy and pathology. Such collections represent a value of at least $5,000. They cannot be purchased; they must be accumulated. There is, therefore, represented in the equipment of five laboratory departments at least $40,000. The salaries for each department will amount to at least $7,000; library appropriation, $200; breakage and repairs, $500; material for students, $750, allowing $15 per student, as an average, for the five laboratories. The sum-total for the five laboratories would amount to $41,750. The minimum salary would be $3,000; the dieners and technicians, of course, receive considerably less. An acceptable school must have at the head of its laboratory department men who are not only capable of directing the teaching, but also of doing and directing some research. Some men when they start may be willing to accept less than $3,000, but as they continue in the work they deserve and must receive some increment, so that the average of the five professorial salaries is certainly $3,000. The professorial salary scale in many schools is now $4,000 or above. To teach a class of fifty students there should be at least three teachers to each department. In laboratory exercises an instructor cannot care for over fifteen to twenty men and get good results. Of course, all of these men should be full-time teachers. Three men to a department, five of these being heads of the departments, and eleven subordinates, constitute the full-time teaching staff in the laboratory department. The subordinates should not receive less than $1,500 a year. Technical assistants are absolutely necessary, and may be paid at least $900 a year, in order to make the place attractive as a career. To attract and hold capable teachers, library facilities must be provided. The initial investment will be about $10,000. The cost of maintenance for a year is about $200 per department. This takes no account of overhead charges in connection with maintaining the buildings and ground, nor is any taken of general administrative expense. Allowing $6,000 per year for such expense gives a minimum total of $50,000 for maintaining the two laboratory years. Income from fees is about $150 per student. The difference between the tuition fees and the maintenance expense must come from some other source.

Minimum Expense of Maintenance of the Clinical Department

Dr. John L. Heffron, Syracuse, N. Y.: I have gathered data from twenty-three Class A schools. At Johns Hopkins the total expense of the clinical department is $141,742. If interest on money invested in buildings and permanent equipment is included, the clinical teaching in Johns Hopkins Medical School costs $375,000 a year. Some schools report an annual expenditure for this work of considerably more than $150,000. In my own school, which does not own a hospital, the clinical teaching expense in hospitals is nil, and yet we think it is efficient. We have a college dispensary which with equipment cost $95,000. The laboratories in the dispensary are equipped and supplied by the university. The laboratories in the affiliated hospitals are largely supported by the hospitals, the university expending not to exceed $200 for this purpose. Each student is required to own his own microscope. For the laboratories of clinical diagnosis, clinical pathology and clinical bacteriology we expend annually in salaries and supplies about $5,000. If the university should charge against us the interest on $95,000 and the cost of up-keep, our total annual expense for clinical teaching would be approximately $10,000. The cost of clinical teaching varies, depending on whether the college owns its own hospital, dispensary and clinical laboratories, and whether the clinical teachers are paid on a part-time or full-time basis. Good clinical teaching can be done with a volunteer clinical faculty in affiliated hospitals, but it is not the best way or the right way. A medical school should own or use, or control and use, a general hospital, and a dispensary, and both should be fully equipped with clinical laboratories for students' use. Clinical teaching can be done efficiently by men who are paid enough to permit them to devote sufficient time to the study and teaching of their subject, and who are permitted to engage in consulting practice which does not interfere with their duties as teachers and investigators. Each major department would require in salaries about $7,500 a year, or a total expenditure for medicine, surgery, pediatrics and obstetrics of $30,000 a year in salaries. In Syracuse the cost per patient per day in the hospital we use is $1.75. The city or some responsible party pays $1.50 of this sum, leaving a daily deficit of 25 cents per patient, which must be made up from the treasury of the university or by subscription. Take as a standard hospital one with four units of twenty-four beds each, and suppose that all the beds were occupied for 75 per cent. of the time; that would give an annual deficit representing the cost to the university or to the public over what had been received of $13,324. Added to the salaries, the total expense would be about $45,000. This is so nearly the $50,000 which it had been estimated is necessary for the conduct of the clinical department of a first-class medical school that it is quite significant.

Report of Committee on Education and Pedagogics

Dr. William P. Harlow, Boulder, Colo.: Views regarding the college work required preliminary to the medical course are that it cannot be given thoroughly in one year unless a course is specially arranged for the purpose, and that a course quite similar to it might be given in one year of the ordinary college course in arts by a close correlation with high school work in the required branches. That a special course would be recognized as a complete year toward the A.B. degree is not claimed by the bulk of its supporters, although such recognition might be accorded it for the degree of B.S. Attempts to meet the requirements as to preliminary education by arranging a premedical course as a sort of adjunct to a medical college is not approved by the committee. A medical school cannot afford to divert its energies to such a purpose. It seems so certain that the amount and kind of work we are requiring as a prerequisite to medicine cannot and ought not to be given in one year, that wisdom lies only in adopting the two year rule.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

February, XXXVI, No. 2, pp. 51-100

1 *Some Phases of Cardiorenal Disease from Therapeutic Standpoint. N. A. Pashayan, Schenectady.
2 Few of the More Frequent Ear Conditions. J. J. Rainey, Troy.
3 Report of Health Director in Public Schools. C. P. McCord, Albany.

1. **Phases of Cardiorenal Disease.**—Pashayan summarizes his views as follows: While cardiorenal disease has apparently a uniform pathologic histology, its clinical manifestations are diverse and the therapeutic measures to be adopted differ in important details. The essential principle to be borne in mind is that hypertension is not an indication for its suppression. It is a protective measure adopted by nature, and when it cannot be reduced by regulating the diet it should be left alone. Nitrites have no utility except in aborting attacks of angina pectoris or pulmonary edema. When lues is not a factor iodids are equally useless and may even do harm. Sudden reduction of blood pressure is a bad omen and it often indicates cardiac dilatation and presages edema and hydrothorax. When we meet such reduction and when cardiac decompensation is impending, even in the presence of hyper-

tension, digitalis should be given in full doses. The theoretical pressor and cumulating effects of this drug have been clinically established to be without foundation.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

February, LXXI, No. 2, pp. 209-384

4 *Physiology and Pharmacology of Excised Human Uterus. C. C. Lieb, New York.
5 Morphology and Histogenesis of Stromatogenous Uterine Neoplasms. L. W. Strong, New York.
6 *New Method of Painless Childbirth. (Tocanalgine.) A. M. Hellman, New York.
7 Necessity of Study of Fetal Heart Sounds in Placenta Praevia. G. Baughman, Richmond, Va.
8 Plea for More Consistent Endeavor to Diagnose Tubal Pregnancy Before Rupture. J. J. Mason, Vancouver, Canada.
9 Bladder Irritability in Women. W. H. Cary, Brooklyn.
10 Kinetic System and Treatment of Peritonitis. G. W. Crile, Cleveland.
11 Ectopic Pregnancy and General Practitioner. B. R. McClellan, Xenia, O.
12 *Operations at Home, When and Under What Circumstances Are They Justifiable. J. E. Sadlier, Poughkeepsie, N. Y.
13 *Report of Year's Work with Abderhalden Reactions. A. J. Skeel, Cleveland.
14 *Treatment of Puerperal Thrombophlebitis. J. F. Baldwin, Columbus.
15 Pregnancy and Incipient and Inactive Tuberculosis. W. G. Dice, Toledo.
16 Labor in Elderly Primipara. J. R. Freeland, Pittsburgh.
17 *Treatment of Abortion on Basis of Its Pathology. C. W. Barrett, Chicago.

4. Physiology and Pharmacology of Excised Human Uterus.—Lieb claims that if the pituitary gland is to be regarded as intimately concerned with the onset of labor, the hormone should be sought, not in the posterior lobe, but in the anterior portion of the gland.

6. New Method of Painless Childbirth (Tocanalgine).—See editorial, Motherhood Without Fear, The Journal, Dec. 19, 1914, p. 2233.

12. Abstracted in The Journal, Oct. 17, 1914, p. 1418.

13. Abderhalden Reactions.—Of 11 cancer cases tested by Skeel 8 were positive to both placental and cancer albumin. Two were negative to both. One was not tested to cancer albumin. Among 9 eclamptics and severe preeclamptic cases, 8 gave positive reactions of usual intensity. One was negative. Syphilitics both before and after salvarsan showed the usual reactions. Of 16 sexual perverts all non-pregnant, 8 were positive and 8 negative. Of positive non-pregnants, 9 were cancer, 3 fibroids, one pseudocyst, 4 inflammatory conditions, 8 sexual perverts, 2 unexplained. Total 27.

14. Abstracted in The Journal, Oct. 17, 1914, p. 1418.

17. Treatment of Abortion on Basis of Its Pathology.—The treatment of abortion suggested by its pathology according to Barrett is as follows: As a prophylactic measure women of a child-bearing age should be kept as nearly as possible free from the pathologic conditions which cause abortion: syphilis thoroughly treated, displacements corrected, deciduitis removed, etc. Conditions threatening abortion should receive attention, such as the removal of an ovarian tumor, or sometimes a fibroid or an incarcerated retrodisplaced pregnant uterus restored to position, operatively or non-operatively. An occasional patient requiring a therapeutic abortion in the early months should be anesthetized in a manner that will best conserve her forces and the uterus should be completely emptied at one sitting. A patient whose health requires that they should not go to term should usually be rendered sterile at this time or some future sitting. Threatened abortion should be treated by rest and sedatives. Inevitable abortion is in good condition only when the uterus is empty. Bleeding or not bleeding, working or at rest, infected or non-infected, no condition leaves the uterus in a more favorable condition by reason of a partial or complete ovum within its cavity. As the complete non-infected abortion is altogether more desirable than the incomplete, so to a greater extent is the complete infected abortion less undesirable than the incomplete with the same kind of infection.

American Journal of Public Health, Boston

February, V, No. 2, pp. 85-182

18 *Some Results of First Year's Work of New York State Commission on Ventilation. C. E. A. Winslow and Others, New York.
19 Sanitation of City of Vera Cruz, Mexico and Army Camps During Occupation of United States Expeditionary Forces. J. T. B. Bowles, Vera Cruz, Mexico.
20 *Widal Reaction Following Administration of Typhoid Vaccine. E. M. Wade and O. McDaniel, Minneapolis.
21 Laboratory Diagnosis of Bubonic Plague. J. F. Anderson, Washington, D. C.
22 Physical Examination of Employees of New York City Department of Health. C. B. Slade, New York.

18. Results of Work of Commission on Ventilation.—The following tentative conclusions are drawn by the commission as the result of experiments: 1. A very high room temperature such as 86 F. with 80 per cent. relative humidity, produces slight, but distinct elevation of body temperature, an increase in reclining heart rate, an increase in the excess of standing over reclining heart rate, a very slight lowering of systolic blood pressure, and a marked fall in the Crampton value. 2. A moderately high room temperature, 75, with 50 per cent. relative humidity, has all the effects noted above although of course in less degree than the extreme temperature condition. 3. Even the extreme room temperature of 86, with 80 per cent. relative humidity, shows no effect on rate of respiration, dead space in the lungs, acidosis of the blood, dissociation of oxyhemoglobin, respiratory quotient, rate of heat production, rate of digestion, carbohydrate or protein metabolism, concentration of the urine and skin sensitivity. 4. The power to do either mental or physical work, measured by the quantity and quality of the product by subjects doing their utmost, is not at all diminished by a room temperature of 86 with 80 per cent. relative humidity. 5. On the other hand, the inclination to do physical work, and the inclination to do mental work are diminished by sufficiently high room temperatures. So far as physical work is concerned our tests show a decrease in actual work performed, when the subject had a choice between working or not working, of 15 per cent. under the 75 condition and of 37 per cent. under the 86 condition, as compared in each case with 68. 6. Stagnant air at the same temperature as fresh air, even when it contains 20 or more parts of carbon dioxid and all the organic and other substances in the breathed air of occupied rooms, has so far, shown no effect on any of the physiologic responses listed above under 1 and 3 nor on the power or inclination to do physical or mental work nor on the sensations of comfort of the subject breathing it. 7. On the other hand the appetite for food of subjects exposed to such stagnant air may be slightly reduced. 8. These experiments seem to indicate that overheated rooms are not only uncomfortable but produce well-marked effects on the heat regulating and circulatory systems of the body and materially reduce the inclination of occupants to do physical work. The most important effects of "bad air" are due to its high temperature, and the effects of even a slightly elevated room temperature such as 75 are sufficiently clear and important to warrant careful precautions against overheating. 9. The chemical changes in the breathed air of occupied rooms are of comparatively minor importance, although the substances present in such air may exert a slight decrease in the appetite for food.

20. Widal Reaction Following Administration of Typhoid Vaccine.—The blood of persons immunized with typhoid vaccine prepared according to directions of U. S. Army, Wade and McDaniel state, should show presence of the Widal reaction at a dilution of 1:50 in the large majority of cases, probably about 90 per cent. Failure to find this high percentage of positive Widal reactions in persons thus vaccinated appears to indicate some technical error in methods and an accompanying failure to confer full immunity. In communities in which paratyphoid occasionally appears, especially in institutions, the authors suggest that it might be preferable to use a mixed vaccine of typhoid and paratyphoid after the recommendation of Castellani. In institutions in which typhoid exists, persons should be immunized on admittance. In institutions in which typhoid carriers are usually present, they should be detected and properly supervised. Vaccination alone must be considered the only necessary prophylactic measure to be taken against the occurrence of typhoid.

American Journal of Roentgenology, Detroit

December, II, No. 2, pp. 541-579

23 *Deep Roentgen Therapy and Its Application in Treatment of Malignant Growths. S. Stern, New York.
24 Possible Effect of Morphin on Intestinal Motility. H. K. Pancoast, Philadelphia.
25 Hydrogen Roentgen Ray Tube. E. W. Kelly.
26 Boiler System of Water Circulation Applied by Water-Cooled Roentgen Ray Tubes. J. M. Garratt, Buffalo.
27 Clip for Holding Dental and Other Films During Development and Drying. S. Tousey, New York.

23. Abstracted in The Journal, Oct. 10, 1914, p. 1321.

Annals of Surgery, Philadelphia

February, LXI, No. 2, pp. 129-256

28 *Cancellous Bone Lesions. G. Barrie, New York.
29 Case of Multiple Congenital Osteochondromata. R. D. Carman, Rochester, Minn., and A. O. Fisher, St. Louis, Mo.
30 *Preliminary Report on Study of Protective Ferments of Blood by Abderhalden Method, After Transplantation of Organs. C. Goodman, New York.
31 *Spina Bifida. N. Sharpe, New York.
32 Developmental Reconstruction of Colon Based on Surgical Physiology. J. M. Lynch and J. W. Draper, New York.
33 Colocolostomy. A. S. Lobingier, Los Angeles.
34 *Duodenotomy in Common Duct Stone. G. M. Todd, Toledo, O.
35 *Mortality Statistics of Two Hundred and Seventy-Six Cases of Acute Intestinal Obstruction. J. B. Deaver and G. G. Ross, Philadelphia.
36 Preservation of Iliohypogastric Nerve in Operation for Cure of Inguinal Hernia. C. N. Dowd, New York.
37 *Complete Fracture of Lower Third of Radius in Childhood with Greenstick Fracture of Ulna. P. G. Skillern, Jr., Philadelphia.
38 *Reformation of Gall-Stones After Operation. E. M. Stanton, Schenectady, N. Y.
39 Double Internal Jugular Vein—High Bifurcation of Common Carotid Artery. J. W. Churchman, New Haven, Conn.

28. **Cancellous Bone Lesions.**—Barrie reports twenty cases of cancellous bone involvement that cannot be classified with the intra-osseous lesions of the long bones that are distinctly non-syphilitic, non-tuberculous, non-malignant and non-suppurative. Neither can they be grouped with the diseases of bone whose etiology is known to be due to disturbed metabolism through the ductless glands. The cases presented are readily divisible into three separate groups of cancellous bone lesions as follows: (1) Metaplastic osteomalacia—systemic lesions (3 cases); (2) hemorrhagic osteomyelitis—local lesions (16 cases); (3) osteochondrofibroma—congenital tumor (1 case).

30. **Study of Protective Ferments of Blood by Abderhalden Method.**—The thyroid, on account of its accessibility and of the ease with which slight degenerative changes may be recognized, was chosen as the organ to transplant in this study. Of Goodman's autotransplants, in two consecutive instances, the thyroid having been removed from the body and reimplanted in the same animal, the results were satisfactory, the thyroid tissue retaining its normal appearance and, apparently, its activity. In a series of homotransplants, although several of the animals lived for some time, the transplant invariably underwent degenerative changes with absorption. From a series of fourteen specimens so far obtained at the laboratory of experimental surgery at the New York University, work conducted through the courtesy of Dr. George D. Stewart, it has been possible in eight instances to demonstrate the presence in the blood of a protective ferment capable of digesting suprarenal tissue. Tests with different substrata are being made to determine whether organs other than the suprarenal are sensitive to a thyroid transplant.

31. **Spina Bifida.**—Sharpe believes that the vast majority, if not all, cases of spina bifida are caused by the pressure exerted by an excessive secretion of cerebrospinal fluid, or, what is more probable, some obstruction to its normal outflow. This pressure, acting in early fetal life at different stages of development, prevents the closure at certain points of the bony canal. This theory is applicable to all forms of spina bifida and has the support of much clinical evidence.

34. **Duodenotomy in Common Duct Stone.**—Basing conclusions on a study of nine cases with only one death, Todd favors duodenotomy when indicated.

35. *Acute Intestinal Obstruction.*—Of the 276 patients reported on by Deaver and Ross 158 recovered and 118 died—a mortality of 42 per cent. One is reported as improved, possibly one of the rare instances of spontaneous recovery or a mistaken diagnosis. The patient noted as unimproved on the records probably declined an operation and insisted on discharge from the hospital. In 241 patients the records were inadequate as to the average time from the onset of the condition to the time of operation. In the patients that recovered it was 61.7 hours or over two and a half days, and in the patient that died, ninety-seven hours or four days and one hour.

Hernias and postoperative and postinflammatory adhesions furnished 253 of the 276 cases of obstruction. There were in all 156 patients of strangulated hernia, or 56.4 per cent. of the total. Of 77 strangulated inguinal hernias, 57, or 74 per cent., recovered, and 20, or 26 per cent., died. Of 50 cases of strangulated femoral hernia, 36, or 72 per cent., recovered, and 12, or 24 per cent., died. One was noted as improved, possibly spontaneous recovery or reduction; and one is noted as unimproved. Of 21 patients of strangulated umbilical hernia, 12 recovered and 9 died, or 42 per cent. Of seven ventral or incisional hernias, 4 recovered and 3 died, or 42 per cent. Next to hernia in number are postoperative adhesions, there being 81 cases, or 29 per cent. of the total number.

Of the 81 patients, 41 recovered and 40 died, a mortality of 49.3 per cent. Of the 81 patients of postoperative adhesions, 51 followed operations for appendicitis and 44 of this series had had drainage at the original appendiceal operation. Each drainage case can safely be held to mean a case in which operation was delayed beyond the time of election. In line with endeavors to prevent instead of treating avoidable surgical conditions, nothing is more important than to forestall the development of pus within the peritoneal cavity. Of the 51 patients 27 died. Seventeen cases are stated to have been due to postoperative adhesions, the primary cause not being given. Fourteen followed operations on the female pelvic organs, hysterectomies, salpingo-oophorectomies, etc. Postinflammatory adhesions were 16 in number. Of these 11 died, a mortality of 68.7 per cent.

There were three cases of fecal impaction with two deaths, a mortality of 66⅔ per cent. There were five cases of volvulus, of which three recovered and two died, or 40 per cent. There were eight cases of acute obstruction complicating carcinoma of the sigmoid. In 63 cases, with records of vomiting, there were 35 recoveries and 28 deaths. In the patients recovering 5 only had reached the stage of fecal vomiting, but the average length of time the patients had been vomiting was two days and one hour. Of the 28 patients dying, 14 had fecal vomiting and 14 non-fecal vomiting only. The average duration of the vomiting had been two days and sixteen hours. In 90 patients in which a record was kept of the fecal evacuations, 52 were patients that recovered and 38 died. A review of the entire mass of statistics on this series of cases makes it evident that in almost every instance, in spite of symptoms so plain as to be pathognomonic, diagnosis has been tardy and operation delayed. Prompt diagnosis and immediate operation will reduce the mortality in acute intestinal obstruction to a mere fraction of that encountered at present.

37. **Forearm Fractures in Childhood.**—There is a fracture of the lower third of the radius and ulna peculiar to childhood and which constitutes about 13 per cent. of fractures of the forearm. This fracture commonly occurs before the age of puberty, is most frequently encountered during the

summer months, and is caused usually by the effects of gravity plus momentum. It is characterized by complete fracture of the radius with dorsal and lateral displacement of the lower fragment and by incomplete greenstick fracture of the inner half of the ulna, usually at a higher level, the outer half remaining intact and maintaining the deformity of the ulna, which is a bowing of the lower fragment toward the radial side and which, in turn, maintains the displacement of the distal fragment of the radius. In reducing this fracture the aim must be to convert the incomplete greenstick into a complete fracture by forcibly rupturing the still intact outer fibers, thereby enabling restoration of alignment of the distal fragment of the ulna with that of the axis of the bone, the distal fragment of the radius coincidentally shifting itself automatically into position. The criterion of reduction is the restoration of the normal alignment of the inner border of the ulna. Treatment is begun by the administration of an anesthetic if deformity exists. Otherwise a carefully prepared and padded splint (or splints) is applied firmly and without undue pressure. Skiagraphic control of reduction is important. Massage and passive motion are adapted to the individual case. The splints must be removed as soon as there is firm union. Operation is indicated only when conservative treatment is admittedly a failure. It will seldom be necessary. The inlay method of Albee should be used instead of an array of metal fixtures.

38. **Reformation of Gall-Stones.**—If no foreign body is left in the gall-bladder or ducts after the operation, Stanton says, the reformation of gall-stones is so rarely observed as to constitute almost a negligible factor in gall-bladder surgery. Cholecystectomy does not afford a much greater immunity against reformation of calculi than does cholecystostomy.

Arizona Medical Journal, Phoenix

February, III, No. 2, pp. 7-20

40 Tuberculous Laryngitis. C. R. K. Swetnam, Los Angeles.

Boston Medical and Surgical Journal

March 4, CLXXII, No. 9, pp. 321-356

41 Carnivorous and Herbivorous Types in Man. J. Bryant, Boston.
42 Roentgen Diagnosis of Gall-Stones by Improved Methods. L. G. Cole, New York, and A. W. George, Boston.
43 *Study of Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. (To be continued.) T. W. Harmer, Boston.
44 Study of Disturbances of Stomach. (To be continued.) H. F. Hewes, Boston.

43. **Efficiency of Mixed Toxins in Inoperable Sarcoma.**—Only those cases in which data were given and which conformed with the criteria adopted for analysis were selected by Harmer for this series. All cases must have been proved by microscopic examination; all must have been primary or recurrent inoperable sarcoma, or cases in which the disease could not be eradicated by operation; all must have been under treatment at least three weeks; all must have been free from concurrent treatment (Roentgen ray, radium, arsenic preparations, etc.). Of the 222 cases abstracted, 100 were chosen as suitable for this analysis. The cases are arranged in six groups, determined by the effect of the toxins. Group A. Cases in which there was no appreciable effect, 12 cases. Group B. Cases in which the growths softened but did not appreciably diminish in size, 5 cases. Group C. Cases in which growths disappeared or practically disappeared, but returned, 20 cases. Group D. Cases in which growths disappeared but metastases simultaneously occurred, 10 cases. Group E. Cases in which growths diminished in size but still persisted, 14 cases. Group F. Apparent cures in which growths disappeared and no metastases have occurred, 73 cases. Spindle cell sarcoma, 26 cases; 36 per cent. apparent cures. Round cell sarcoma, 28 cases; 39 per cent. of apparent cures. Melanotic sarcoma, 6 cases, 5 in Group D, one in Group F. Giant cell sarcoma, 14 cases; 11 apparent cures. Mixed cell sarcoma, 13 cases; 5 apparent cures.

Harmer concludes that mixed toxins of streptococcus and bacillus prodigiosus (Coley) are of value in certain cases of inoperable sarcoma. He emphasizes that the treatment of primary or recurrent inoperable sarcoma with mixed toxins must be intensive, and that the institution of this treatment is unjustifiable in cases in which operative measures of reasonable safety offer possible hope for removal. Seventy-three of the cases analyzed after most rigorous criticism have been regarded as apparent cures. The small round cell type apparently offers the greatest expectation of benefit, followed closely by the spindle-cell type (excluding fibrosarcoma). Only a relatively small number of mixed cell type have been benefited. The use of toxins in cases with multiple melanotic growths does not seem justifiable but their use in single melanotic growths is legitimate. Regarding the tissue of origin the greatest number of apparent cures have occurred in bone sarcoma (exclusive of giant cell cases) over 18 per cent. of the total number of apparent cures, with an equal division of round cell and small cell types. Giant cell cases furnish about 15 per cent. of the total number of apparent cures. Primary, inoperable, round cell sarcomata of the cervical glands compose about 10 per cent. of apparent cures. Sarcomata arising from fascia and muscle, which have been apparently cured, have been situated in the lower extremity, abdominal wall, and back. They composed about 16 per cent. of the total number of apparent cures. Nine of twelve are of spindle cell type. In a small number of cases the toxins produce striking relief of pain.

Cleveland Medical Journal

January, XIV, No. 1, pp. 1-80

45 *Hirschsprung's Disease. Report of Case. W. E. Lower, Cleveland.
46 Treatment of Psychoneurotic Patients. T. A. Williams, Washington, D. C.
47 Geologic Evidence of Man's Antiquity. T. W. Todd, Cleveland.
48 *Goiter as it was Known One Hundred Years Ago. B. L. Spitzig, Cleveland.
49 Scopolamin Amnesia in Labor. J. T. Smith, Jr., Cleveland.

45. **Hirschsprung's Disease.**—The method Lower employed in his case, that of a boy 11 years of age, was a primary resection of the entire colon from the hepatic flexure to the lower part of the rectum. Unfortunately the patient died. The operation was not especially difficult and the patient was not shocked as result of the operation, reacting very well and seemed to be in fairly good condition for several days. There was some vomiting, never any distention, and no evidence of peritonitis. The bowels moved without much difficulty on the second day. Just what the cause of the death was in this case Lower was unable to determine, but there seemed to be some interference with the metabolism rather than a local causative factor.

48. **Goiter as it was Known One Hundred Years Ago.**—Spitzig presents what he terms a free and withal accurate rendition of the chapter on "goiter" in an old German encyclopedia. "The Great Conversational Lexicon for the Cultured," published by Meyer in 1851. The entire work is included to permit of a comparative study of the ideas current in the first half of the nineteenth century, to secure for the old masters a just recognition of their able work.

Georgia Medical Association Journal, Augusta

February, IV, No. 10, pp. 285-309

50 Physician and Medical Society. S. R. Roberts, Atlanta.
51 Treatment of Cerebrospinal Meningitis by Drainage of Lateral Ventricle. R. V. Martin, Savannah.
52 Epidemic Cerebrospinal Meningitis from Bacteriologic Standpoint. K. R. Collins, Atlanta.
53 Reuniting Brachial Plexus. Report of Case. L. C. Fischer, Atlanta.
54 Fusiform Bacillus Found in Vagina. G. T. Horne, Augusta.
55 Psychiatry as Problem in Medical Colleges. J. W. Mobley, Milledgeville.

Indiana State Medical Association Journal, Fort Wayne

February, VIII, No. 2, pp. 63-112

56 Aids to Diagnosis in Pelvic Inflammations in Women. A. E. Schweitzer, Indianapolis.
57 Better Obstetrics. H. D. Fair, Muncie.
58 *Serum Test for Pregnancy. J. M. Ketcham, Indianapolis.
59 How to Advance Pharmacy in Indiana. C. B. Jordan, Lafayette.

58. Abstracted in The Journal, Oct. 24, 1914, p. 1500.

Journal-Lancet, Minneapolis

February 15, XXXV, No. 4, pp. 81-108

60 Medical Education and Medical Profession. E. P. Lyon, Minneapolis.
61 Status of Medical Education. R. O. Beard, Minneapolis.
62 Bifida, Cranial and Spinal. Report of Four Cases. J. D. Taylor, Grand Forks, N. Dak.
63 Syphilis and Its Relation to Society. A. J. McLaughlin, Sioux City, Ia.
64 Dilatation of Cervix by Means of Bags. R. T. La Vake, Minneapolis.

Journal of Nervous and Mental Disease, Lancaster, Pa.

February, XLII, No. 2, pp. 65-128

65 Unilateral Hypertrophy or Trophedema of Limbs. Report of Case. H. T. Pershing, Denver.
66 Loss of Memory Alleged by Murderers. T. Diller, Pittsburgh.
67 *Neuropathologic Findings in Case of Pernicious Anemia with Psychic Implication. J. A. F. Pfeiffer, Washington, D. C.

67. **Neuropathologic Findings in Anemia.**—The conclusions deducted by Pfeiffer from his study are that cerebral alterations can be demonstrated in progressive pernicious anemia, and that in cases with psychic phenomena, changes in the cortical neurones occur similar to those found in the psychosis of toxemic origin.

Lancet-Clinic, Cincinnati

February 27, CXIII, No. 9, pp. 225-252

68 Harrison Act. F. H. Freericks, Cincinnati.
69 Anoci-Association in Stomach and Gall Tract Surgery. G. W. Crile, Cleveland.
70 Bone Transplants. I. Cohn and G. Mann, New Orleans.

Maine Medical Association Journal, Portland

February, V, No. 7, pp. 241-280

71 Surgical Diarrheas. S. G. Gant, New York.
72 Use and Misuse of Hexamethylenamin. C. M. Robinson, Portland.
73 Pneumonia. E. C. Cook, York Village.

Medical Record, New York

March 6, LXXXVII, No. 10, pp. 379-420

74 Uterine Fibroids, Menorrhagia and Radium. R. Abbe, New York.
75 Radiochemicotherapy; Internal Therapeutics of Radio-Elements. W. J. Morton, New York.
76 Efficiency of Radio-Active Waters for Control of Faulty Elimination. C. E. Field, New York.
77 Epileptic Type of Nervous Constitution. R. G. MacRobert, New York.
78 Cereals in Milk Modification. F. B. Cross, Brooklyn.
79 *New Curative Treatment for Pneumonia. F. E. Park, Stoneham, Mass.

79. **New Curative Treatment for Pneumonia.**—For a period of two years Park has tried out his method on a large number of cases of various acute infectious diseases, mostly of the respiratory tract, and in no case has he seen any untoward results. The percentage of cures in all the cases observed (the patient beginning to improve markedly within a very short time of the administration of the remedy, and convalescence being established usually within three days) has so far been 100. Park cites case histories of twelve cases of acute lobar pneumonia, all in adults, the age ranging from 19 to 90 years. Park gives intravenous injections of a solution which is prepared as follows: In 2 ounces of chemically pure distilled water dissolve 15 grains each of sodium salicylate and the soluble phosphate of iron. This solution is sterilized by heat and on cooling there is added 15 minims of a saturated calcium-creosote mixture, the whole then being passed through a small laboratory porcelain filter. The injections are made through the skin, with an all-glass syringe, using a 27-gauge needle, into one of the large veins of the forearm. The dose varies from 2 to 5 c.c., according to circumstances. The injection must be made very slowly.

Michigan State Medical Society Journal, Grand Rapids

March, XIV, No. 3, pp. 149-212

80 Chronic Intestinal Stasis—Fluoroscopic and Roentgen Ray Diagnosis in Light of Operative Findings. W. S. Bainbridge, New York.
81 *Some Aspects of Congenital Syphilis Affecting Nervous System. C. D. Camp, Ann Arbor.
82 Prognosis of Cancer of Stomach. J. H. Andries, Detroit.
83 Stephen Hales—Preacher Physiologist. W. J. Stapleton, Jr., Detroit.
84 Tuberculous Meningitis and Tabes Dorsalis in Woman Eight Months Pregnant. Death Due to Lobar Pneumonia. Necropsy. C. D. Camp, Ann Arbor.
85 Some Phases of Infantile Paralysis Problem. C. L. Washburne, Ann Arbor.
86 Fulminating Otitis Media, Mastoiditis, Extensive Sigmoid Sinus Thrombosis, Ligation of Internal Jugular Vein, Recovery. H. I. Lillie, Ann Arbor.
87 Case of Congenital Ptosis and Its Correction by Hess Operation. C. E. Abell, Ann Arbor.
88 Case of Abdominal Cesarean Section Following Interposition Operation for Uterine Prolapse, Complicated by Placenta Praevia. 2. Case of Abdominal Cesarean Section for Contracted Pelvis After Early Rupture of Membranes. F. M. Loomis, Ann Arbor.
89 Case of Syphilis with Early Central Nervous Involvement. U. J. Wile, Ann Arbor.
90 Case of Congenital Atresia of Esophagus. J. B. Jackson, Kalamazoo.

81. **Syphilis Affecting Nervous System.**—A negative history for syphilis in the parents of a patient, no matter how carefully inquired into, cannot, Camp says, be trusted to rule out the diagnosis of congenital syphilis of the nervous system. A negative Wassermann reaction on the blood of both parents is not sufficient to exclude the diagnosis of congenital syphilis of the nervous system. Mental defect often associated with paralytic and convulsive phenomena is frequently due to congenital syphilis. The diagnosis in such cases must be made by the peculiar clinical manifestations, but it will often be confirmed by a positive Wassermann reaction on the blood or cerebrospinal fluid or both and by the results of therapy. The pathology in such cases is probably a chronic interstitial encephalitis. There are many cases of meningoencephalitis and meningomyelitis occurring in children that are due to inherited syphilis but which are often mistaken for tuberculous meningitis or for poliomyelitis. The clinical findings are the best diagnostic criteria in such cases.

Military Surgeon, Chicago

February, XXXVI, No. 2, pp. 105-203

91 An Ambulance Company. L. L. Hopwood, U. S. Army.
92 Suggestions for Field Emergency Case. P. C. Fauntleroy, U. S. Army.
93 Medical Department of Advance Base Brigade. D. N. Carpenter, U. S. Navy.
94 Advisability and Practicability of Specialists in Medical Corps of Navy. N. J. Blackwood, U. S. Navy.
95 Influence of Immigration on Dissemination of Tuberculosis; and Importance of Detecting Disease. F. A. Ashford, U. S. P. H. Service.
96 Practical Method of Embalming on Shipboard. E. Francis, U. S. P. H. Service.

New Mexico Medical Journal, Las Cruces

February, XIII, No. 5, pp. 157-186

97 Orchitis and Epididymitis. F. F. Fadley, Albuquerque.
98 Eradication of Tuberculosis and Means by which it May be Accomplished. F. C. Smith, Fort Stanton.
99 Obstruction of Bowels. R. L. Bradley, Roswell.
100 Some Duties of Physician to Laity. W. G. Hope, Albuquerque.
101 Kidney Efficiency. H. A. Ingalls, Roswell.
102 Construction Camp, Elephant Butte, New Mexico. J. D. Graham, New Mexico.

New York Medical Journal

March 6, CI, No. 10, pp. 437-492

103 Spinal Anesthesia in Gynecology. H. J. Boldt, New York.
104 Symptoms of Disease of Pituitary. J. H. W. Rhein, Philadelphia.
105 Differential Diagnosis Between Acute Pathologic Perforations within Abdomen. J. E. Summers, Omaha.
106 Nature and Pathogenesis of Epilepsy. L. P. Clark, New York.
107 Applicability of Binet-Simon Intelligence Tests in Psychoses of Senium. L. Wender, Washington, D. C.
108 Vincent's Angina. Report of Case. M. J. Synnott, Montclair, N. J.
109 Roentgen Ray Treatment of Exophthalmic Goiter. M. K. Fisher, Philadelphia.
110 Gonorrhea with Unusual Complications (Phlebitis; Epididymitis). M. Zigler, New York.
111 Roentgen Diagnosis of Some Pathologic Conditions of Large Intestines. L. Jaches and M. Rosensohn, New York.

Pennsylvania Medical Journal, Athens

February, XVIII, No. 5, pp. 333-416

112 Original Surgical Uses of Bone Graft. F. H. Albee, New York.
113 Acute Surgical Metastatic Infections with Especial Reference to Bones, Joints and Periarticular Structures. N. Ginsburg, Philadelphia.
114 Lateral Repair of Lateral Tear of Perineum. W. R. Davies, Scranton.

115 Surgery of Spinal Cord. J. S. Rodman, Philadelphia.
116 Treatment of Fibromyomata Uteri; Whether Surgery or Radiotherapy. S. E. Tracy, Philadelphia.
117 Some Unusual Forms of Congenital Cataract. W. C. Posey, Philadelphia.
118 Importance of Early Recognition of Invasion of Nervous System. W. K. Walker, Pittsburgh.
119 *Results in Series of Forty-Five Cases of Syphilis of Central Nervous System Treated by Swift-Ellis Salvarsanized Serum Method. C. C. Wholey, Pittsburgh.
120 Swift-Ellis Treatment of Cerebrospinal Syphilis from Laboratory Standpoint. E. W. Willetts, Pittsburgh.

119. Syphilis Treated by Swift-Ellis Salvarsanized Serum Method.—Experience leads Wholey to conclude that intravenous administration as a routine practice, does not give the results, in cases of spinal fluid infection, that are obtained by the Swift-Ellis method. Though in certain cases the intravenous treatment may prove efficacious, it is almost always slower, requiring a greater amount of salvarsan; frequently it fails entirely to reach the seat of infection. This frequent failure of intravenous salvarsan to reach the seat of the disease, and the necessity therefore for the intraspinous, or Swift-Ellis method, is explained by a glance at the path of transmission through which the drug probably reaches the central nervous system. Under normal conditions the spinal fluid is, almost wholly, a product of the secretory function of the choroid plexuses. It follows that whatever substance is introduced into the spinal fluid by way of the blood stream must pass through this gland. This gland being a vascular fold of the pia, a meningeal membrane, becomes itself a seat of inflammation, and its normal function thus becomes crippled or abolished.

Wholey sounds a note of warning as to the careless and indiscriminate use of salvarsan therapy. There seems to be a notion prevalent that the handling of these cases is a simple matter; that treatment means but a routine, perfunctory administration of certain amounts of given specific. The facts are that we are dealing with a powerful therapeutic agent, the amounts of which must necessarily be carefully controlled, and adapted to each individual case. There have been enough cases carefully and scientifically handled to lead to the belief that it is a most efficacious as well as safe remedy for syphilis if rightly used. Wholey concludes by stating that no physician unable, or unwilling, to make careful note of the finer mental shadings, and the delicate, often obscure, neurologic changes indicative of the progress or trend of the disease, and to see that the technic of the administration is all that is desirable, has any right to take into his hands the responsibility for the use of this remedy.

Public Health Journal, Toronto

February, VI, No. 2, pp. 53-100

121 Home Hospital. W. P. Capes, New York.
122 Instruction and Choice of Suitable Nurses for District Work in Home, Tuberculosis and Infant Welfare Departments. M. A. MacKenzie.

South Carolina Medical Association Journal, Anderson

February, XI, No. 2, pp. 35-68

123 Homeopathy. A. L. Smethers, Anderson.
124 Surgery of Pus Tubes. R. T. Ferguson, Gaffney.
125 Ophthalmia Neonatorum—Prevention and Cure. G. A. Neuffer, Abbeville.
126 Plea for Early Diagnosis and Treatment of Perforations of Intestines in Typhoid. Report of Four Cases. S. E. Harmon, Columbia.
127 Renal Function in Conjunction with Ureteral Catheterization. W. R. Barron, Columbia.
128 Some Diagnostic Evidence Showing that Exploratory Operation on Genito-Urinary System is Never Justifiable; or even Allowing Permanent Invalidism of These Organs is Very Rarely Excusable. M. H. Wyman, Columbia.

Wisconsin Medical Journal, Milwaukee

February, XIII, No. 9, pp. 333-382

129 Are Physicians Square with Their Tuberculosis Patients? H. E. Dearholt and C. M. Cheadle, Milwaukee.
130 Case of Hypophysaire Adiposogenitalis with Polyglandular Manifestations. F. C. Studley and J. M. Conroy, Milwaukee.
131 Mongolism. A. L. Beier, Chippewa Falls.
132 Fluorescent Screen in Medicine and in Surgery. E. A. Smith, Milwaukee.
133 Should State Make Wassermann Examinations at Nominal Fee? W. F. Lorenz, Mendota.
134 Two Interesting Letters Concerning Causes of Cholera, as Understood in 1849. J. H. Voje, Oconomowoc.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

February 20, I, No. 2825, pp. 321-361

1 Gunshot Wounds of Head. V. Horsley.
2 *Wassermann Reaction in Ophthalmic Practice. W. H. Manson, T. J. Mackie and H. E. Smith.
3 *Dupuytren's Contraction. K. Black.
4 Popliteal Aneurysm in Girl: Matas' Restorative Operation. J. L. Dunlop.
5 Sliding Hernia. H. R. Unwin.
6 Insects and War; Mosquito. A. E. Shipley.
7 *Value of Salicylic Acid in Treatment of Wounds and Typhoid. A. Wilson.
8 Treatment of Trichiasis by Means of Roentgen Rays. C. Kempster.

2. Wassermann Reaction in Ophthalmic Practice.—Excluding such conditions as ocular injuries, conjunctivitis, cataract and the ordinary errors of refraction, if all other ocular affections without selection are analyzed on the basis of the Wassermann test, the authors found that practically 50 per cent. of these collectively are associated with a positive reaction. Since many of such lesions occur in the tertiary and latent stages of syphilis in which only a certain proportion yield a positive result, they believe it is a justifiable presumption that this is probably an underestimate, and that syphilis plays an even more prominent part in the production of ocular disease than their figures show. They are strongly of opinion that, apart from the previously mentioned conditions (injuries, etc.), all cases presenting themselves at an eye clinic should be submitted to the Wassermann test; if this were carried out systematically the clinician would have at his disposal direct evidence which would be of great value in respect to effective treatment, and in a very large number of cases clinical inference would be converted into practical certainty. Moreover, certain etiologic obscurities might be definitely resolved as the result of such systematic and extensive investigations.

3. Dupuytren's Contraction.—Black suggests that the true cause, or at least the principal cause, of Dupuytren's contraction will eventually be recognized to be a certain internal condition (possibly akin to a gouty or rheumatic condition) among persons of advancing age.

7. Value of Salicylic Acid in Treatment of Typhoid.—In typhoid Wilson suggests the use of 3 to 5-grain doses of salicylic acid given with milk, so as to be carried more quickly into the bowel, or in suspension with bismuth and mucilage. The effect of excessive dosage in normal individuals is a slight diarrhea with dryness of the evacuations. In typhoid this would not give rise to any complication nor depression. For wounds he urges the use of salicylic acid as a first dressing on the field, to be applied by the patient or his comrades. A convenient method would be pads of salicylic wool between layers of gauze after the style of gamgee tissue. In hospitals it could be dusted on from an ordinary perforated container. Apart from its convenience and easy application, salicylic acid has special advantages over phenol or iodin. The former is hardly reliable under 5 per cent., while 2 per cent. iodin besides being painful, has a doubtful and unproved reputation, and may lead to sloughing in damaged tissues. Security is obtained by 0.5 per cent. salicylic acid, while antisepsis actually occurs at 0.2 per cent. or 1 in 500. The fresh serum being alkaline, takes up the full dose of salicylic acid, as that the threshold of invasion is constantly bathed in a protecting antiseptic.

Dublin Journal of Medical Science

February, III, No. 518, pp. 81-160

9 Failure of Vaccination Acts. T. P. C. Kirkpatrick.
10 Therapeutic Action of Normal Horse Serum. J. T. Simpson.

Journal of Hygiene, London

January, XIV, Supplement, pp. 683-792

11 Epidemiologic Observations in Madras Presidency. J. C. Kunhardt and Others.
12 Vaccination Against Body-Strain of Plague. S. Rowland.
13 Immunization by Pseudotubercle. S. Rowland.
14 Immunization by Living Avirulent Cultures (Strong). S. Rowland.

15 Influence of Race on Efficiency of Antigen. S. Rowland.
16 Failure to Vaccinate Against Virulent Body-Strain Even with an Antigen Prepared as Far as Possible under Body Conditions. S. Rowland.
17 Protective and Curative Value, Against Infection with Serum Race of Plague, of Serum of Horse Immunized with Nucleoprotein Extracted from Strain of Plague Bacilli Propagated on Serum Protein. S. Rowland.
18 Ultraviolet Light as Germicide in Preparation of Plague Vaccine. S. Rowland.
19 Length of Time that Fleas (Ceratophyllus Fasciatus) Carrying Bacillus Pestis in Their Alimentary Canals are Able to Survive in Absence of Host and Retain Power to Reinfect with Plague. A. W. Bacot.
20 Mechanism of Transmission of Plague by Fleas. A. W. Bacot.
21 Development of Bacillus Pestis in Bugs (Cimex Lectularius) and Their Power to Convey Infection. A. W. Bacot.

Journal of Obstetrics and Gynecology of British Empire, London

September, XXVI, No. 3, pp. 129-176

22 Speculum Matricis. A. Doran.
23 Pelvic Inflammation. F. A. L. Lockhart.
24 Hemorrhage into Ovary Associated with Severe Dysmenorrhea. B. Whitehouse.
25 Malaria as Complication of Puerperium. B. Solomons.
26 Case of Bilateral Duplication of Ureters Complicating Operation for Cancer Cervix Uteri. R. Worrall.
27 Hydronephrosis Developing Suddenly Twenty-One Days after Laparotomy for Large Pyosalpinx. Nephrectomy. V. B. G. Armytage.

Journal of Pathology and Bacteriology, London

January, XIX, No. 3, pp. 305-455

28 *Cellular Reactions Induced by Local Deposits of Cholesterin in Tissues. M. J. Stewart.
29 Antagonistic Relations Between Trypanosomes and Blood Elements. H. Seidelin.
30 Pathology of Yellow Fever in Guinea-Pigs. H. Seidelin.
31 *Symmetric Cortical Necrosis of Kidney in Pregnancy. E. E. Glynn and H. Briggs.
32 Primary Cancer of Liver Occurring in Sheep. R. Donaldson.
33 Division Forms of Parasites in Organs of Guinea-Pigs Infected with Paraplasma Flavigenum. H. Seidelin.
34 *Histology of Thyroid in Animals Fed on Various Diets. M. Douglas.
35 *Lipoids in Immunity. F. H. Thiele and D. Embleton.
36 *Mechanism of Antibody Action. F. H. Thiele and D. Embleton.
37 *Criteria of Virulence Among Streptococci; Streptococcal Leukocidin. J. W. M'Leod.
38 *Retention of Iron in Organs in Hemolytic Anemia. R. Muir and J. S. Dunn.
39 Detection and Estimation of Bacterial Indol and Observations on Intercurrent Phenomena. F. C. Lewis.
40 *Experimental Scarlet Fever in Monkey. W. Mair.

28. **Cellular Reactions Induced by Cholesterin.**—Crystallin cholesterin, Stewart says, is deposited in the tissues in various forms and under various pathologic conditions. Deposits of the tabular crystals give rise, in paraffin sections, to a very characteristic appearance, namely, that of "cholesterin clefts." When the deposits occur in the midst of the living connective tissues, they give rise to a very special cellular reaction, characterised by the presence of numerous "foamy" endothelial cells, and by varying numbers of giant cells of the foreign-body type. This giant-cell reaction is generally induced by the tabular form of cholesterin, but in some inflammatory breast lesions with retentions of the secretions, acicular cholesterin is deposited within the dilated ducts, and lead to the formation of very striking and characteristic "giant cell rosettes." Appearances point to the giant cells being derived from the endothelial cells; in part, at least, by a process of fusion. Cholesterin must therefore be regarded as a very potent and widely acting stimulant to the formation of foreign-body giant cells in human pathologic processes.

31. **Necrosis of Kidney in Pregnancy.**—Typical symmetric cortical necrosis of the kidney, according to Glynn and Briggs, is apparently invariably associated with pregnancy. Thirteen cases have been recorded. The lesion is due to thrombosis of the interlobular arteries, their afferent branches and glomerular capillaries, and begins in the distal ends. In their cases the thrombi in the distal ends and middle of the interlobular arteries, their branches and glomerular capillaries consist mainly of platelets; fibrin is relatively scanty and in filamentous form. The thrombi in the proximal ends of these vessels consist mainly of fibrin in hyaline form; many erythrocytes and leukocytes are also present; platelets are very scanty. It is extremely probable that platelets formed the chief portion of the thrombi in other recorded cases, but their presence was overlooked. The deposition of platelets was the primary cause of the thrombus and preceded the deposition of fibrin. It was the result of injury to the vascular endothelium. This injury was probably caused by an endotheliolytic toxin allied to the group of toxins in pregnancy which may produce eclampsia. A variable amount of sclerosis of the renal arteries occurred in six of the thirteen cases. It probably predisposed to thrombosis by causing slowing and other irregularities in the circulation, or by injuring the endothelium or rendering it more susceptible to injury.

34. **Histology of Thyroid in Animals.**—No characteristic appearances in the pigeon in the condition of beriberi were found by Douglas. In pigeons fed on polished rice, the tendency is for the disappearance of colloid from the vesicles of the thyroid. These animals, are, for the most part, not so well nourished as normal birds. The histologic appearances do not represent different stages of secretion, comparable to those on secreting glands engaged in the process of digestion. Under similar conditions and in animals fed on similar diets, the appearances in the thyroid differ very markedly. One observes all stages from the type with large vesicles, full of colloid with flattened cells, to that of a thyroid with no colloid and columnar-shaped cells. Also the thyroid may be wholly or partially disintegrated. The variation, in appearance, of the thyroid, Douglas states, seems to depend to some extent on the nutrition, and is thus only in this way dependent on the diet.

35. **Lipoids in Immunity.**—Thiele and Embleton believe that the hemolytic power of a serum bears no relationship to its lipolytic power. A hemolysin is not a lipase. Antibodies cannot be provoked against the ordinary tissue fats, lipoids or phosphatids. The phosphatids of the tubercle bacillus can, however, provoke antibody formation. Those produced are: Precipitins, Bordet gengou; anaphylactic antibodies. These are not strictly specific, but react not only with the specific antigen, but with the whole or lipoid-free antigen from which the phosphatid was obtained. Guinea pigs can be rendered actively hypersensitive to the phosphatids of the tubercle bacillus by a previous inoculation with those phosphatids. Such animals are also somewhat hypersensitive to the proteins of the tubercle bacillus, and vice versa guinea pigs sensitized with tubercle protein react mildly with the bacillary phosphatid. The symptoms and mode of death occurring on the reinoculation of such hypersensitive animals are identical with those occurring in acute protein anaphylaxis.

36. ***Mechanism of Antibody Action.***—That the activity of complement depends solely on its concentration, not on the total amount exhibited, is the opinion held by Thiele and Embleton. This holds all through when the antigen has been sensitized with only one dose of antibody. When, however, the antigen has been sensitized with several doses, the above holds after a certain degree of dilution. This degree of dilution varies with the amount of an individual antibody. Amboceptor combines quantitatively with its homologous antigen, and its activity does not depend on its concentration. Increasing amboceptor diminishes to a certain degree the complement concentration necessary to produce complete lysis. Above a certain amount, increase in the amount of amboceptor does not diminish the necessary complement concentration. It, however, greatly accelerates the rate of the reaction. In addition to requiring a certain concentration, complement must also be present in a certain minimal amount. It thus frequently occurs that the amount of complement necessary to produce complete lysis is the same in dilutions of 1, 2, 3 and more cubic centimeters. Study of the curves of complement activity shows that they are like those of enzyme action. With increasing concentration of the antigen more complement is necessary to produce complete lysis in standard time. This is opposed to the results of Scheller. The necessary increase is at first small, a fraction of the original unit; later, the increase with each successive dose of antigen is much greater, and ultimately becomes greater than, and a multiple of, the original unit.

37. **Criteria of Virulence Among Streptococci.**—M'Leod found that among hemolytic streptococci the power to produce hemolysin in the animal body, or in cultural conditions closely resembling those met with in the animal body, is closely allied to virulence. Growth of streptococci in fresh sterile human serum and titration at the end of twelve to eighteen hours of the amount of hemolysin produced for a 5 per cent. suspension of human blood in normal salt solution would, if tried, probably afford a valuable criterion of virulence among streptococci. For the quantitative and qualitative estimation of hemolysin production by streptococci the blood agar plate is unreliable and should give place to titration of the minimum hemolytic dose of a culture of streptococci in fluid medium. Prominent biologic characteristics of strains of streptococci such as hemolysin production are most probably very constant characteristics. Actively hemolytic streptococci appear also to produce a leukocidin. Many strains of streptococcus may retain a moderate degree of virulence for the rabbit even after subculture on ordinary agar medium for two years or more.

38. **Retention of Iron in Organs in Anemia.**—In acute hemolytic anemia attended with destruction of more than half of the blood within three days, Muir and Dunn found that nearly all the iron from the destroyed hemoglobin is deposited in the liver, spleen and kidneys; a certain amount escapes in the urine when there is hemoglobinuria, and the amount deposited in the kidneys is roughly proportional to this. A third of the total iron of the blood may be deposited in the organs mentioned within twenty-four hours. With regard to the deposits of hemosiderin, a broad distinction can be made between that resulting from lysis and that resulting from phagocytosis of red corpuscles.

40. **Experimental Scarlet Fever in Monkey.**—Mair's monkey received an intraperitoneal injection of 10 c.c. of citrated blood from a severe case of scarlet fever on the fourth day of the disease. On the next day at noon the temperature had risen 2 degrees F., and it remained up till after 9 p. m. The following day it had returned nearly to the normal. Döhle's bodies were found in 55 per cent. of the leukocytes on the first day, and in 15 per cent. on the second day. After that they disappeared. A portion of the blood used for this injection was found to be sterile when tested on ordinary medium, and Mair is of the opinion that this reaction was due to a toxin in the patient's blood and not to an infection. After many failures to repeat this experiment with the blood of other patients Mair succeeded in obtaining a similar reaction by the subcutaneous injection of mouth washings from scarlet fever patients in two cases out of five. Attempts were again made to pass the infection on to other monkeys by means of cultures, and this time with success. From fluid withdrawn from a local swelling a culture on agar was obtained consisting chiefly of a large staphylococcus, but containing also numerous diplococci. In subculture this diplococcus could be grown only on serum containing medium, and not on ordinary agar or broth. Its presence in large numbers in the pus, and the fact that it appeared to be the only organism present, made it highly probable that it was the cause of the reaction.

Mair believes that it follows from his results that in the mouth washings which gave a positive reaction the diplococcus must have been present in enormous numbers, comparable to those in the cultures, and that it may very possibly have been present even in the negative cases, although not in sufficient numbers to produce a reaction. If the reaction in the monkey is really scarlet fever then, Mair says, there can be little doubt that the diplococcus in question is the cause of scarlet fever in the human subject. The direct evidence in favor of this view is the resemblance, in at least two important features, of the disease in the monkey to human scarlet fever, and the occurrence of the diplococcus in the throats of a considerable proportion of scarlet fever cases. Mair has been unable to produce the reaction in monkeys with long-chained streptococci, isolated from the blood and from the throats of scarlet fever patients. That this is not due merely to want of virulence is shown by the fact that one monkey, which received an intraperitoneal injection of a culture of a streptococcus from the heart blood of a fatal case of scarlet fever, died a week later from peritonitis without having shown any sign of the reaction.

Mair suggests the possibility that all cases of scarlet fever are not due to the same diplococcus, but what appears fairly certain at present is that there is a specific scarlet fever caused by a diplococcus with definite cultural characters, and that this scarlet fever is not caused by the ubiquitous pyogenic streptococci which are not infrequently found in its complications and even occasionally in the blood of uncomplicated cases. The almost constant occurrence of long-chained streptococci in the blood of fatal cases at the necropsy must be regarded as a terminal or even a post mortem phenomenon. Mair also believes that scarlet fever is a disease analogous to diphtheria, in cases in which the infective agent, gaining only a slight foothold in the tissues at a local focus, is able to produce a toxin which is poured into the blood. The pyrexia and exanthem and the changes in the leukocytes are the direct result of the action of this toxin, as is also probably the arthritis when this occurs. In the nephritis occurring toward the end of the third week, other factors appear to be involved which may now possibly be capable of resolution by the experimental method.

Lancet, London

February 20, I, No. 4773, pp. 359-418

41 Gunshot Wounds of Head. V. Horsley.
42 Pernasal Operation for Frontal Sinus Suppuration by Anterior Route. P. Watson-Williams.
43 *Lipemia Retinalis. R. F. Moore.
44 Operative Treatment of Bullet Wounds Involving Vertebral Canal and Associated with Complete Paralysis. L. J. J. Muskens.
45 Case of Acute Tetanus with Recovery. A. G. Whitehorne-Cole and W. M. S. Robinson.

43. **Lipemia Retinalis.**—Lipemia retinalis occurs in young diabetics who are usually bordering on coma, and it consequently implies an immediately grave prognosis, but recovery from the condition may occur. Moore says that it implies a high degree or lipemia and it is probable that in no condition other than diabetes does lipemia attain a sufficiently high degree to give rise to the appearances of lipemia retinalis. Vision may remain unaffected in spite of a very high degree of lipemia retinalis. The conspicuous changes in color and appearance of the retinal vessels are probably entirely dependent on the opacity of the plasma, and do not indicate a change in the hemoglobin. Lipemia retinalis supplies so striking and characteristic an ophthalmoscopic picture that it cannot be overlooked nor mistaken for any other condition.

Archives de Médecine des Enfants, Paris

November-December, XVII, Nos. 11-12, pp. 801-960

46 *Study of Toxic Action of Helminths. (Toxicité des ascarides lombricoides.) A. Brinda.
47 Radiography of Diseased Bronchial Glands. J. Comby.

46. **Toxicity of Ascarides.**—Brinda summarizes the literature on this subject and then describes prolonged research on laboratory animals treated with extracts of different intestinal parasites, of ascarides in particular. Nearly a hundred pages are devoted to the detailed findings in his experiments. They all testify to an extremely toxic action from the ascarides extract and also that the damage therefrom was the more pronounced the younger the organism treated with it. The toxic action was evident on the circulation, the pulse, the blood pressure, the respiration and in the pathologic-anatomic findings. The respiration acquires a tetany-like character unless the dosage is very small. This peculiarity of the toxic action is often noticed in children with large numbers of ascarides. When there are enough of them to generate large amounts of toxins, they act on the respiration centers, and extremely serious phenomena may follow. Respiratory symptoms are an important element in the clinical picture in children with helminths. The extract or juice squeezed out of ascarides has likewise a marked influence in inducing convulsions and hemolysis. Everything seems to point to an extremely active toxalbumin.

Presse Médicale, Paris

February 4, XXIII, No. 5, pp. 33-40

48 Treatment of Severe Suppuration in the Knee with or without Fracture. Chaput.
49 Every Wounded in War Should Be Given Preventive Antitetanus Serum. P. Bazy.
50 Improvised Apparatus for Electric Treatment of Wounded Nerves. J. Larat and P. Lehmann.
51 *Improvised Electric Apparatus for Locating Bullets, etc., in the Tissues. (Recherche des projectiles de guerre dans le corps humain.) J. Garel.

February 11, No. 6, pp. 41-48

52 Nerves Embedded in Cicatricial Tissue. (Séniologie et traitement des troubles fonctionnels dus à la striction des troncs nerveux par du tissu cicatriciel dans les plaies de guerre.) P. Coryllos and R. Pecker.
53 Secondary Diffuse Aneurysmal Hematoma after Wounds in War. J. Tissot.

51. **Improvised Electric Apparatus for Locating Bullets, Etc., in the Tissues.**—Garel describes several devices for this purpose. One is an ordinary telephone receiver with two wires, one twisted around a spoon, the other around a probe. The patient holds the spoon in his mouth, the physician holds the receiver to his ear while probing for the metal in the tissue. When the probe touches the metal there is an unmistakable click. Another simple device consists of two magnetic needles, one suspended by a thread. This "astatic needle" is more reliable than the needle of a compass, he states, but the compass alone can render good service in locating a metal foreign body.

Beiträge zur klinischen Chirurgie, Tübingen

XCIV, No. 2, pp. 225-514

54 Liver Abscess as Complication of Acute Appendicitis; Eighteen Cases. G. Petren.
55 Appendicitis: Differentiation, Complications and Local Anesthesia. Rittershaus.
56 Appendicitis in Children: Ninety-Eight Cases. Rittershaus.
57 *Spontaneous Rupture of the Tendons in the Fingers. W. Weigeldt.
58 Ossification in Connection with Goiter. (Ossifikation in kropfendemischen und kropffreien Gebieten.) E. Heller.
59 *Relations between Ovaries and Parathyroids. (Zur Frage der Beziehungen zwischen Ovarien und Epithelkörperchen.) M. Meyer.
60 Heliotherapy of Surgical Tuberculosis without Mountain Climate. H. Schmerz.
61 Restoration of Nose by Italian Method. (Zur Rhinoplastik.) Steinthal.
62 Experiences in Four Hundred Operations on the Thyroid. (Wundbehandlung, Wundverlauf und Wundfieber bei 400 Kropfoperationen.) A. Steinegger.

No. 3, pp. 515-646

63 Restoration of Nose. (Nasenplastik.) F. König.
64 Operation for High Shoulder. (Eine neue Operation des angeborenen Schulterblatthochstandes.) F. Konig.
65 *Operation to Relieve Pressure from Mediastinal Tumors. F. König.
66 *Implantation of Soft Parts in Resection of Joints. (Zur Frage der Weichteilimplantation bei Gelenkresektionen.) F. Hohmeier and G. Magnus.
67 *Splint Treatment of Club-Foot. (Klumpfussbehandlung mit bipedaler Schiene.) G. Magnus.
68 Superficial Blastomycoses. (Hautblastomykosen.) H. Kehl.
69 *Ivory for Repair of Bone. (Ueber Elfenbein in der Osteoplastik und über Elfenbein- und Horneinheilung.) von Kamptz.
70 *Hemostasis. (Ueber die Blutstillung.) T. Ohkohchi.

57. **Spontaneous Rupture of Tendons in the Fingers.**—Weigeldt's first patient was a carpenter of 26 who had been out of work for over a year. Then he had work in sawing and kept at the saw for three days. After his long rest he found it hard work, and he noticed that his right wrist had swollen. He kept on working and the swelling subsided, but two days later he had a feeling as if something had broken in his hand, but there was very little pain although he could not stretch his thumb. A physician treated him with local massage and baths but without relief, and two weeks later the surgeon confirmed the diagnosis of rupture of, and performed a successful plastic operation on, the tendon. In a second case a woman of 35 tore the tendon across in a fall in which the radius was fractured. In a third case the tendon was not entirely severed but an operation was required. The outcome in the three cases was excellent. The literature on the subject is compared with the history of his three cases.

59. **Relations Between Ovaries and Parathyroid.**—Meyer's experimental research fails to confirm Silvestri's statements in 1910 that adult female cats, dogs and rabbits escape tetany after removal of the parathyroids if they previously have been castrated, while tetany develops in young animals of both sexes, whether or not they have been previously castrated. In Meyer's experiments all the female dogs developed fatal tetany after parathyroidectomy, regardless of age or previous castration. This evidence disproves an antagonism of the kind assumed by Silvestri between the ovaries and parathyroids.

65. **Decompressive Operation for Tumor in the Chest.**—König reports the case of a man of 33 with large tumors on both sides of the neck, encircling the neck and extending down into the chest. One was excised and proved to be malignant lymphoma. The tumors had been developing for eighteen months; when the cyanosis and dyspnea became unbearable, König slit the sternum from top to bottom and introduced two ivory wedges to hold the gap open. The ivory wedge was shaped something like a broad square spool, the inner end a little narrower. The cut edges of the sternum were hollowed out a little to hold the wedges in place. The relief was immediate and pronounced. He emphasizes that the ivory implant must be wrapped or embedded in soft parts for it to heal in place. The sternum was drilled in the center and from this hole it was cut upward and downward with a small Jansen's bone forceps.

66. **Interposition of Soft Parts in Resection of Joints.**—Hohmeier and Magnus report further experiences which sustain their former assertion that the healing and functioning of animals' joints after resection is not modified by interposition of soft parts. The clinical course and the ultimate outcome seem to be different from those of similar operations on man, animals apparently being able to do without the interposed soft-tissue flap which is proving so useful in the clinic.

67. **Bipedal Splint for Club-Foot.**—Magnus has been much pleased with the results of bandaging both feet on a single board in correction of club-foot. When both feet are deformed, the two can be thus maintained in extreme correction until the deformity is overcome. When only one foot is deformed, the other can be fastened to the board in its normal position. The feet can be held in position on the board with adhesive plaster or with a plaster cast for each foot, including the part of the board below in each cast. The results are seen to be most excellent in the two cases illustrated before and after, especially in the case of an infant of 5 months with feet in normal position after a five months' course of treatment.

69. **Ivory Implants.**—Von Kamptz gives twenty-four illustrations in the text and three colored plates to show what becomes of an ivory or horn implant in the tissues. The work was done at König's clinic at Marburg. All the facts observed testify that ivory has a peculiar action on the tissues, stimulating bone growth, which gnaws at the ivory and grows into its place. In soft parts, a capsule of connective tissue develops around it, within which the ivory persists unmodified. It does not stimulate the periosteum to grow, and hence its special field is to serve as a support and bridge, the ivory peg being implanted with an end in the bone marrow above and below. This stimulates the production of new bone and guides it in the proper channels.

70. **Means to Arrest Hemorrhage.** — Ohkohchi reports experiments with various kinds of tissues to test their hemostatic power. He found that the mechanical arrest of hemorrhage by fascia or muscle is more effectual with muscle tissue as it fits better against the bleeding surface. Fat tissue acts still better, but omental tissue supplements the passive mechanical action with an active clinging to the bleeding surface. Disturbing adhesions seem to develop most frequently with muscle flaps. Great damage is wrought whenever either of the surfaces in contact develops necrosis. This occurred in his experiments most frequently with muscle flaps, and least with omentum. On the other hand, proliferation of connective tissue was most pronounced with pedunculated omentum flaps. All the advantages of the above, he adds, can be secured, with none of their disadvantages, by

using a slice of sea sponge. It arrests the bleeding mechanically, it is gradually absorbed, and it does not seem to irritate the environment, that is, minimal adhesions form later and the parenchyma of the organ does not degenerate. Granulation tissue rapidly invades the porous sponge by the second day, and soon development of polynuclear giant cells at the point of contact is evident.

Berliner klinische Wochenschrift

February 1, LII, No. 5, pp. 97-120

71 *Latent Infection as Affecting Surgical Measures. (Begriff der ruhenden Infektion in seiner Bedeutung für die Chirurgie.) E. Melchior.
72 The Potato. (Die Kartoffel als Volksnahrungsmittel.) P. F. Richter.
73 Value of Quinin in Pneumonia. Aufrecht.
74 *Study of the Functional Capacity of the Stomach. (Untersuchung des Magens mittels Sekretionskurven.) Skaller.
75 Normal Standards of Weight. (Zur Frage der konstitutionellen Fettsucht.) G. Oeder.
76 Technic for Making Fenestrated Plaster Casts. (Gipsverbände.) H. Schaefer.

71. **Latent Infection.**—Melchior reports a number of experiences which teach that when a phlegmon, a focus of osteomyelitis, or a suppurating glandular process heals, this is by no means equivalent to a complete cure in the bacteriologic sense. The infection has merely subsided into an inactive stage, a partial immunity. The germ of a recurrence or metastasis is already installed. The conception of a "resting infection" throws light on many cases of so-called predisposition or diathesis, and it also is suggestive for estimation of the effects of trauma.

74. **Improved Technic for Study of Stomach Secretion.**—Skaller declares that the technic he advocates enables the secretory functioning to be charted, the curve thus showing the condition much more instructively than the usual methods in vogue. He uses a retention tube like the duodenal tube, with a metal capsule, and, for the test fluid, 5 gm. of Liebig's meat extract in 200 c.c. water. This is obtainable everywhere, is thin, so it can be easily pumped out, and exerts a marked stimulating action on the secreting glands. To aid in estimation of the motor functioning, he adds 25 drops of phenolphthalein to the fluid. This does not modify the secretion but the findings show when the stained fluid has left the stomach. The production of mucus in the stomach is rendered evident by the mucus content of the thin fluid pumped out of the stomach. The work-curves drawn from the findings thus record in turn the secretion of gastric juice, the motor functioning of the stomach, and the proportion of mucus produced. He gives no details of the actual technic. His previous communication on the subject was briefly summarized in The Journal, Jan. 10, 1914, p. 168.

Jahrbuch für Kinderheilkunde, Berlin

January, LXXXI, No. 1, pp. 1-95

77 *Aplastic Hemolytic Anemia in Children. H. Kleinschmidt.
78 Pathology and Treatment of Chronic Internal Hydrocephalus. J. v. Bokay.
79 Three Cases of Exfoliative Dermatitis of the New-Born in the Same Family. S. v. Ujj.
80 Lordotic Albuminuria Due to Mechanical Causes Plus Local and General Predisposition. (Lordotische Dispositionsalbuminurie.) R. Fischl and E. Popper.
81 *Chronic Articular Rheumatism in Children. J. Westmeyer.

77. **Hemolytic Anemia in Children.**—Kleinschmidt describes four cases of a form of anemia in children, between 4 and 12, at Berlin. It is characterized by hemolysis in the blood itself and failure of the bone marrow to produce new cells. The red cell count is considerably increased, but there are no special changes in the shape of the cells. There is neither megalocytosis, poikilocytosis or polychromatophilia; there are no basophile granules; erythroblasts were not found except in one case, and then only a few. The color index is generally lower than 1. The character of the white cells is not changed, but they are decreased considerably in number, especially the polymorphonuclears, so that there is a relative lymphocytosis. There are no eosinophils; the number of blood platelets is greatly decreased. The anemia generally ends fatally in from six to nine months; one case lasted for a year and nine months. There are no remissions in the disease and all attempts at treatment have failed, including iron and arsenic treatment and blood transfusion.

One of the most striking things about the disease is the pronounced tendency to hemorrhages in the skin, mucous membranes and internal organs. There is a slight yellowish tinge to the skin, but not the straw yellow of pernicious anemia. Neither urobilin nor urobilinogen could be demonstrated in the urine. While many of the clinical symptoms are similar to those of pernicious anemia, the blood picture is decidedly different. Neither the blood picture nor the clinical findings alone are pathognomonic of a blood disease, but the combination of the two is. So this may be considered an entirely separate disease of unknown toxic origin.

81. **Chronic Rheumatism of the Joints in Childhood.**—Westmeyer gives the histories of five cases of chronic rheumatism in young children. The disease began with a more or less pronounced chronic fever, with swelling of the glands in the neck. The joint swelling began almost imperceptibly; gradually tumor-like swellings of the joints appeared and in three of the cases they became so severe that there was spontaneous luxation of the hip. The site of election was the vertebrae in the neck and the large joints. Often in cases of this kind there is a remittent fever of varying degree for years; the joint disease increases in intensity only very gradually. In one of the cases with few symptoms the jugular glands enlarged and there was stiff neck. After six months this subsided, but later there was a second attack; only after almost complete recovery from this did the disease appear in its typical form. In this case it seems probable that the body was able to overcome the disease twice, but succumbed the third time. In two cases there was complete spontaneous recovery after the disease had persisted for several years. There was even spontaneous reposition of a dislocated hip joint.

There is no doubt that this is an infectious disease and that the portal of entry for the infection, as in acute articular rheumatism, is the upper air passages. The heart is involved in both conditions, but less frequently in the chronic form. The difference in the mode of onset of the acute and chronic forms may be due to the fact that they are caused by a different agent, or that children react differently. There were signs, not very pronounced, of exudative diathesis in all these patients. In all his cases this primary chronic joint rheumatism began before the child was 5 years old. Some cases recover spontaneously. The ordinary medical measures for acute rheumatism have no effect. The most effective treatment is hot baths of the joints followed by massage and active movements.

Medizinische Klinik, Berlin

January 31, XI, No. 5, pp. 121-148

82 The Sanitary Officer on Duty with the Troop. (Erfahrungen eines Truppenarztes.) E. Stadler.
83 *Treatment of the Wounded from the Orthopedic Standpoint. A. Ritschl. Concluded in No. 6.
84 *Infection of Wounds. (Extremitätenverletzungen mit bes. Berücksichtigung der Infektion.) J. Petermann and W. Hancken.
85 *Meatless Days. (Fleischlose Tage.) C. A. Ewald.
86 *Hematuria. A. Seelig.
87 *Early Physical Symptoms of Dementia Praecox. E. Breiger. Commenced in No. 4.

February 7, No. 6, pp. 149-178

88 *Measures to Ward Off and Eradicate Typhoid. (Typhusverbreitung und Typhusbekämpfung im Felde.) Uhlenhuth and others.
89 Prevalence of Phlegmons at Point of Anticholera Inoculation. (Choleraimpfphlegmonen.) F. Dedekind.
90 *Diabetes in the Elderly. (Der Diabetes der Alternden.) E. H. Kisch.
91 Milk in Medical Practice. (Die Milch in der ärztlichen Praxis.) Disqué.
92 Carbon Tetrachlorid Non-Inflammable Substitute for Benzin. Krummacher.

83. **Orthopedic Principles in Treatment of the Wounded.**—Ritschel emphasizes the necessity for being inspired by orthopedic principles in treating the wounded even from the very first day. He insists that every medical man should be trained in massage. Massage or other means to stimulate the circulation is indispensable in practically every case after the second or third day, but strict individualization is required, constantly keeping in view the ultimate wage-

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111 Chylous and Chyliform Effusions. E. Fubini.
112 The Suprarenal-Genital Syndrome. L. Dozzi.

February 7, No. 11, pp. 161-176

113 When Can the Syphilitic Marry Safely? (Il matrimonio tra sifilitici.) Vasoin.
114 The Pathology from Tobacco. (Tabagismo.) C. S. Materazzi.

Policlinico, Rome

February 7, XXII, No. 6, pp. 185-220

115 Spasmodic Pain in the Testicles and Cord. (Il dolore testicolo cordonale.) A. Campani.

Brazil-Medico, Rio de Janeiro

January 8, XXIX, No. 2, pp. 9-16

116 The Biting Apparatus of Brazilian Insect, the Triatoma Megista. (Apparelho salivar do barbeiro.) M. Torres.

January 15, No. 3, pp. 17-24

117 Ulcerating Granuloma; Two Cases. O. Torres. Commenced in No. 2.
118 The Local Reaction to a Mosquito Bite an Element in the Defense against Malaria. J. A. de Magalhães.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

XIII, No. 1, pp. 1-196. German Edition. Last indexed June 6, 1914, p. 1854

119 *Comparative Microscopic Anatomy of Vertebrates. (I: Verdauungsorgane der Anuren.) G. Osawa.
120 The Mite Causing Japanese River Fever. (VII. Aetiologie der Tsutsugamushikrankheit.) M. Ogata and M. Takenouchi.
121 Cultivation of Rat-Bite Fungus. (Kultur des Rattenbissfadenpilzes auf festem Nahrboden.) M. Ogata.
122 *Sugar Content of the Blood. (Blutzuckergehalt beim gesunden und kranken Menschen.) R. Watanabe and K. Sakaguchi.
123 Improved Technic for Determination of Sugar Content of Blood and Milk. (Kleine Modifikation der Pavy-Kumagawa-Sutoschen Zuckerbestimmungsmethode fur geringe Zuckermenge.) Z. Hatta.
124 *The Pancreas Secretion with Abnormal Gastric Secretion. (Pankreassekretion bei Sekretionsstorungen des Magens.) S. Okada.
125 Oxidase Reaction in Sections of Tissues. (Ueber Oxydasereaktion an Gewebsschnitten.) Y. Ikeda.
126 Action of Beriberi Serum on Frog's Vessels. (Vasokonstriktorische Wirkung des Serums von Kakke-Kranken auf die überlebenden Froschgefässe.) S. Sakai and T. Hiramatsu.

119. **Comparative Microscopic Anatomy.**—This finely illustrated article is a microscopic study of the digestive organs of thirteen different species of frogs and toads.

122. **The Sugar Content of the Organic Fluids.**—In the research reported an alimentary increase in the sugar content of the blood was evident in both the healthy and those with nephritis and exophthalmic goiter. In diabetes the sugar content in the blood sometimes persisted abnormally high long after the sugar had disappeared from the urine. This should be heeded in treatment. It was found further that the ability of the kidneys to retain sugar was much greater than had been supposed.

124. **Pancreas Functioning with Abnormal Secretory Functioning in the Stomach.**—Okada extols the duodenal pump as a more reliable means of studying pancreas functioning than by the oil breakfast or examination of the stools. When gastric secretion is deranged, pancreas secretion is increased, as if to compensate for the defective digestion in the stomach. He found the casein test for determining the presence of trypsin in fluids, a simple, rapid and reliable method.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 30, I, No. 5, pp. 349-408

127 *The Albumin Reaction in the Sputum. (De eiwitproef van het sputum.) E. P. Snijders.
128 Church and Science in the Fifteenth Century. (Kerk en wetenschap in Vesalius' dagen.) B. W. T. Nuijens.
129 Combined Radiotherapy of Ear Disease. (Behandeling van oorziekten door middel van radium en mesothoriumbestraling.) F. H. Quix.

February 6, No. 6, pp. 409-488

130 Medical Impressions of the War. (Oorlogsindrukken.) O. Lanz.
131 *The Aberhalden Reaction in Nervous and Mental Disease. L. Bouman and J. A. Van Hasselt.
132 Huge Retroperitoneal Cystomyoliposarcofibroma. G. A. Van Leeuwen.

February 13, No. 7, pp. 489-568

133 *Severe Forms of Functional Insufficiency of the Gastro-Intestinal Glands in Infants. (Maag- en darmachylie bij kinderen in de eerste levensjaren.) H. A. Stheeman.
134 *Preparation of Buttermilk for Infant Feeding. (Een nieuwe wijze van toebereiding der karnemelk voor zuigelingen.) J. Stärcke-Polenaar.

127. **The Albumin Reaction in the Sputum.**—Snijders' own experience confirms the general consensus of opinion that albumin in the sputum is a sign merely of some disturbance in circulation or infectious process in the lower air passages. It is no more specific for pulmonary tuberculosis than the diazo reaction, but like that, may be valuable as corroboratory evidence. At the same time, he adds, it might prove extremely instructive if large numbers of young people with high albumin content were kept long under observation to determine whether hitherto latent tuberculosis may not be responsible for it. An albumin content over one-half per thousand might perhaps suggest a search for tubercle bacilli. It might also prove instructive if the albumin content of the sputum were to be systematically recorded after injections of tuberculin. If the albumin content increased, then an activation of the tuberculous process might be assumed.

131. **The Protective Ferments in Nervous and Mental Disease.**—Bouman and van Hasselt tabulate the findings with the Abderhalden test in 123 persons, including 7 supposedly normal persons. In one of this group there was a weak digestion of brain, ovary and thyroid tissue and in another of brain and suprarenal tissue; in another, of ovary tissue alone, and in another of thyroid and suprarenal tissue. These positive responses in the healthy warn against relying on this test for differential diagnosis under any circumstances. In the 38 dementia praecox cases there was notable digestion of brain tissue in 22 cases and of thyroid tissue in 25. In 14 manic-depressive cases there was only very slight digestion of brain tissue in one case and of thyroid tissue in 4. In paralytic dementia there was notable digestion of brain tissue in 8 out of 10 cases; of thyroid tissue in 3 and of testicle tissue in 6 of the 9 men. Paralytic dementia alone gave the same responses with both the old and the new technics, brain

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112 The Suprarenal-Genital Syndrome. L. Dozzi.

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113 When Can the Syphilitic Marry Safely? (Il matrimonio tra sifilitici.) Vasoin.
114 The Pathology from Tobacco. (Tabagismo.) C. S. Materazzi.

Policlinico, Rome

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115 Spasmodic Pain in the Testicles and Cord. (Il dolore testicolo cordonale.) A. Campani.

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116 The Biting Apparatus of Brazilian Insect, the Triatoma Megista. (Apparelho salivar do barbeiro.) M. Torres.

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119 *Comparative Microscopic Anatomy of Vertebrates. (I: Verdauungsorgane der Anuren.) G. Osawa.
120 The Mite Causing Japanese River Fever. (VII. Aetiologie der Tsutsugamushikrankheit.) M. Ogata and M. Takenouchi.
121 Cultivation of Rat-Bite Fungus. (Kultur des Rattenbissfadenpilzes auf festem Nahrboden.) M. Ogata.
122 *Sugar Content of the Blood. (Blutzuckergehalt beim gesunden und kranken Menschen.) R. Watanabe and K. Sakaguchi.
123 Improved Technic for Determination of Sugar Content of Blood and Milk. (Kleine Modifikation der Pavy-Kumagawa-Sutoschen Zuckerbestimmungsmethode für geringe Zuckermenge.) Z. Hatta.
124 *The Pancreas Secretion with Abnormal Gastric Secretion. (Pankreassekretion bei Sekretionsstörungen des Magens.) S. Okada.
125 Oxidase Reaction in Sections of Tissues. (Ueber Oxydasereaktion an Gewebsschnitten.) Y. Ikeda.
126 *Action of Beriberi Serum on Frog's Vessels. (Vasokonstriktorische Wirkung des Serums von Kakke-Kranken auf die überlebenden Froschgefässe.)* S. Sakai and T. Hiramatsu.

119. **Comparative Microscopic Anatomy.**—This finely illustrated article is a microscopic study of the digestive organs of thirteen different species of frogs and toads.

122. **The Sugar Content of the Organic Fluids.**—In the research reported an alimentary increase in the sugar content of the blood was evident in both the healthy and those with nephritis and exophthalmic goiter. In diabetes the sugar content in the blood sometimes persisted abnormally high long after the sugar had disappeared from the urine. This should be heeded in treatment. It was found further that the ability of the kidneys to retain sugar was much greater than had been supposed.

124. **Pancreas Functioning with Abnormal Secretory Functioning in the Stomach.**—Okada extols the duodenal pump as a more reliable means of studying pancreas functioning than by the oil breakfast or examination of the stools. When gastric secretion is deranged, pancreas secretion is increased, as if to compensate for the defective digestion in the stomach. He found the casein test for determining the presence of trypsin in fluids, a simple, rapid and reliable method.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 30, I, No. 5, pp. 349-408

127 *The Albumin Reaction in the Sputum. (De eiwitproef van het sputum.) E. P. Snijders.
128 Church and Science in the Fifteenth Century. (Kerk en wetenschap in Vesalius' dagen.) B. W. T. Nuijens.
129 Combined Radiotherapy of Ear Disease. (Behandeling van oorziekten door middel van radium en mesothoriumbestraling.) F. H. Quix.

February 6, No. 6, pp. 409-488

130 Medical Impressions of the War. (Oorlogsindrukken.) O. Lanz.
131 *The Aberhalden Reaction in Nervous and Mental Disease. L. Bouman and J. A. Van Hasselt.
132 Huge Retroperitoneal Cystomyoliposarcofibroma. G. A. Van Leeuwen.

February 13, No. 7, pp. 489-568

133 *Severe Forms of Functional Insufficiency of the Gastro-Intestinal Glands in Infants. (Maag- en darmachylie bij kinderen in de eerste levensjaren.) H. A. Stheeman.
134 *Preparation of Buttermilk for Infant Feeding. (Een nieuwe wijze van toebereiding der karnemelk voor zuigelingen.) J. Stärcke-Polenaar.

127. **The Albumin Reaction in the Sputum.**—Snijders' own experience confirms the general consensus of opinion that albumin in the sputum is a sign merely of some disturbance in circulation or infectious process in the lower air passages. It is no more specific for pulmonary tuberculosis than the diazo reaction, but like that, may be valuable as corroboratory evidence. At the same time, he adds, it might prove extremely instructive if large numbers of young people with high albumin content were kept long under observation to determine whether hitherto latent tuberculosis may not be responsible for it. An albumin content over one-half per thousand might perhaps suggest a search for tubercle bacilli. It might also prove instructive if the albumin content of the sputum were to be systematically recorded after injections of tuberculin. If the albumin content increased, then an activation of the tuberculous process might be assumed.

131. ***The Protective Ferments in Nervous and Mental Disease.***—Bouman and van Hasselt tabulate the findings with the Abderhalden test in 123 persons, including 7 supposedly normal persons. In one of this group there was a weak digestion *of brain, ovary and thyroid* tissue and in another of brain and suprarenal tissue; in another, of ovary tissue alone, and in another of thyroid and suprarenal tissue. These positive responses in the healthy warn against relying on this test for *differential* diagnosis under any circumstances. In the 38 dementia praecox cases there was notable digestion of brain tissue in 22 cases and of thyroid tissue in 25. In 14 manic-depressive cases there was only very slight *digestion* of brain tissue in one case and of thyroid tissue in 4. In paralytic dementia there was notable digestion of brain tissue in 8 out of 10 cases; of thyroid tissue in 3 and of testicle tissue in 6 of the 9 men. Paralytic dementia alone gave *the* same responses with both the old and the new technics, brain

tissue being regularly digested with both. Epilepsy showed a regular hodgepodge of responses, with no apparent connection with seizures. On the whole, they conclude that to date no reliance can be placed on the Abderhalden test in these conditions although it is possible that improved technic may realize the attractive hypothetical possibilities in it. They are inclined to think that suggestion has been a considerable factor in the matter. At the same time they intend to continue their clinical research on the subject as it seems probable that schizophrenia is connected in some way with the internal secretions and that protective ferments must develop in consequence.

133. **Gastro-Intestinal Secretory Insufficiency in Infants.**—Stheeman describes five cases of the severer form of stomach and intestinal achylia or pluriglandular insufficiency of the gastro-intestinal system—the bankruptcy of the chemistry in the stomach or intestines or both. The children were from 13 to 30 months old. The resulting dyspepsia with its abnormal products, the fermentation processes with their influence on the general metabolism (acidosis), and the catarrhs with their waste of mineral elements, all aid in maintaining the vicious circle, and the resulting condition, the "decomposition," makes rapid progress. The emaciation, the dry skin, the albuminuria, are all signs of this vicious circle, as also *the symptoms on the part of both the peripheral and central* nervous system. They amounted to actual tetany in one case; in others the nervous symptoms resembled those with poliomyelitis or beriberi; he adds that nervous symptoms of this character are never encountered in simple "infantile atrophy." The intensity of the nervous manifestations rose and fell parallel with the intestinal and general phenomena, and he regards this as evidence that a single cause is responsible for both. There is evidently some constitutional physical inferiority; the tetany testifies to functional weakness on the part of the parathyroids, and the intestinal insufficiency to functional weakness of the pancreas, and recent research has shown that the hormones of the parathyroids and pancreas reenforce each other.

When the general condition improved under dietetic measures *the superficial and tendon reflexes returned and the* nervous symptoms became attenuated, but he did not succeed in any of these cases in restoring the nervous system to normal stability. In one infant the vomiting—the only symptom of the spasmophilic tendency—passed over into complete tetany, notwithstanding that the general condition had remarkably improved. The assumption that part of the disturbances are the consequences of an avitaminosis is sustained by the fact that the anomalies in the reflex system became corrected as the general condition improved. On the other hand, danger lurks in the uniformity of the diet which the condition requires. One of the infants developed scorbutus as a result of this, falling thus from one avitaminosis into another as the first one was corrected. This shows how hard it is to find a food which combines digestibility, sufficient calories, and these "imponderables." A diet such as is ordered for rachitis is not indicated. The digestion of albumin is comparatively little impaired. Milk should be the main reliance; if this is not tolerated, buttermilk or albumin milk. Albumin milk is used extensively in his service, made from unboiled milk. If a little starch is allowed later it must be dextrinized. As the child improves, gruels, bouillon-rice and cocoa may be added. He always makes extensive use of the juices of fresh fruit, and *gives minute doses of* cod liver oil, alone or combined with phosphorus (when there is a spasmophilic tendency), and calcium chlorid. In a number of less severe cases unmistakable improvement in the glandular functioning followed the administration of cod liver oil. The catarrhal condition is treated with mild astringents, or a mild Carlsbad course of treatment. He emphasizes also the advantages of a consommé soup for two of the five feedings. The veal (*Kalfspoület*), rice and vegetables are cooked for three hours in an airtight pot and the soup is then served well strained. As the child improves, some of the meat can be put through a sieve and given with the soup, as the digestion of albumin is comparatively normal in the cases in question.

134. **Preparation of Buttermilk for Infant Feeding.**—Polenaar states that this can be much facilitated by mixing the small amount of flour required (usually from 10 to 15 gm. to the liter), with about as much water as usually evaporates from a liter in the course of the cooking, namely, about 100 gm. of water. The flour is stirred into this small amount of water and thoroughly cooked. Then the liter of buttermilk is stirred in, a very little at a time, until the whole is well blended and has cooked together. By this time the small amount of water added at first has usually been evaporated, so that the whole represents now merely a liter or less. The procedure takes only fifteen or twenty minutes on a gas stove, and buttermilk cooked in this way does not separate on reheating as usually happens with other methods.

Hospitalstidende, Copenhagen

February 3, LVIII, No. 5, pp. 105-128

135 *Diagnosis of Duodenal Ulcer. O. Wulff.

135. **Diagnosis of Duodenal Ulcer.**—This communication from Rovsing's service gives the results of comparison of the symptoms and clinical course with the operative findings in 118 cases of gastric or duodenal ulcer. A good review of the literature on duodenal ulcer precedes the report, and the conclusions are summarized as follows:

The set of symptoms described by Bucquoy and Moynihan occur much more regularly with duodenal ulcer than with any other localization of an ulcer, but they are sometimes encountered with ulceration in the stomach or pylorus alone, near or at some distance from the pylorus. The set of symptoms described by Hartmann and Souppault, the *syndrome pylorique*, is also not peculiar to a pyloric or juxtapyloric ulcer as it may be observed with an ulcer higher up in the stomach or lower in the duodenum. It seems to be impossible therefore to diagnose beforehand with absolute certainty whether the ulcer is in the stomach or in the duodenum. In the 61 cases of gastric ulcer alone, the duodenal train of symptoms was presented exclusively and in its most typical form in 7, and not so clearly in 7 others. The *syndrome pylorique* was pronounced only in 1 out of 18 cases of actual *pyloric ulcer; in 10 out of 15 cases of juxtapyloric duodenal* ulcer, and in 5 out of 15 juxtapyloric gastric ulcer cases. Of the 39 duodenal ulcer cases all but 10 were men. The symptoms were of the characteristic Moynihan type in only 12 of the total 39. In 21, occult hemorrhage aided in the diagnosis, but in 18 cases there was absolutely nothing to indicate whether the ulcer was in the stomach or duodenum.

Ugeskrift for Læger, Copenhagen

February 4, LXXVII, No. 5, pp. 175-208

136 *Phlegmons Around the Ear in Scarlet Fever. (Om periaurikulære Abscesser ved Scarlatina.) S. T. Sørensen.

136. **Phlegmons Around the Ear in Scarlet Fever.**—Sørensen reports that this complication was noted in 54 among 4,000 cases of scarlet fever at the Blegdam Hospital in two recent years. In 5 cases an abscess developed on both sides. In the operative cases the abscess was opened down to the bone and drained, and when the bone was carious it was scraped away down to sound tissue. The ear was treated by rinsing it out and instilling a weak aqueous solution of iodin. None of the patients died under conservative measures, although in many the scarlet fever had been of the severest type. In 42.3 per cent. of the total number, on discharge, *the ear and its environment were clinically normal;* in 46.2 per cent. the ear or the abscess was still discharging, and in 11.5 per cent. the abscess was still angry. In 2 cases only the abscess subsided under conservative measures alone. In his total experience with 30,000 scarlet-fever cases he has scarcely ever encountered meningitis or suppuration in the brain. Consequently he does not advise radical treatment unless there seems to be special danger of involvement of the brain. Relative indications are afforded by signs of beginning pyemia. Under other conditions he advises to wait until the scarlet fever or streptococcus infection has run its course. The operation thus should not be attempted until after the patient has left the contagious disease ward. No complications developed in any of his cases treated on these principles.

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A CONSIDERATION OF THE RELATIVE FREQUENCY OF THE VARIOUS FORMS OF COMA

WITH SPECIAL REFERENCE TO UREMIA [*]

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Not only has the differential diagnosis of the various types of coma occupied a conspicuous place in routine medical instruction for a long period, but this topic year after year is the subject of contributions to medical literature so numerous that many pages would be required to enumerate the references to articles quite generally accessible.

One phase of these many considerations has been quite generally ignored, the relative frequency with which the different causes of coma bring it about. With this in mind, the following study of the clinical and anatomic conditions attending 200 deaths in coma or semi-consciousness has been made.[1] It is believed that various factors, such as the degree of medical skill, methods of hospital practice, etc., pertaining to the clinical examinations, as well as to the diagnoses, may not be very unlike those existing in hospitals of other large communities like Chicago receiving a great deal of so-called emergency work.

It is obvious that any estimate of the value of present-day methods of determining the causes of coma should in all fairness take into consideration the periods under clinical observation, and for this reason the results of our study are presented as charts. The 200 deaths all occurred in a period of about three and one-half years. The deaths in coma developing in the hospital or those in which the cause was well understood, such as illuminating gas, phenol (carbolic acid) or other poisons are not included.

We have accepted as the clinician's conclusion the diagnosis entered on the first page of the clinical record in the place provided for such entry, notwithstanding that this entry has in some instances been made after death and possibly with a knowledge of the conditions found at the post-mortem examination. This element of error we do not believe is a large one, and whatever its size there still remains enough of interest to illustrate the results attained in the practical recognition clinically of the causes of coma.

Chart 1 deals with all 200 deaths, with the exception of 17 which took place between the fifth and the seventeenth days, inclusive. The heavier upper line indicates the times when deaths occurred as well as their number, the lower lighter line the number correctly diagnosed. From this it can be seen that of 200 deaths in coma, 47 occurred within four hours of admission, and of these, 20, or 42.5 per cent. were correctly diagnosed. Both curves take an abrupt descent to the 8-hour period, and of the 18 deaths falling in the period of four to eight hours, 10, or 55.5 per cent. were correctly diagnosed. In the third period (eight to twelve hours), 19 died, 10, or 52.6 per cent. with correct diagnoses.

It follows, then, that 116 deaths occurred within twenty-four hours of admission, and 59, or 50.7 per cent., with correct diagnoses. Thirty-five died on the second day, and 13, or 37 per cent., of these were correctly diagnosed. Of 14 dying on the third day, 6, or 42.8 per cent., were correctly diagnosed; on the fourth day, 4 (44.4 per cent.) of 9, and of the remaining 26 deaths occurring from the fifth to the seventeenth day, inclusive, the diseased conditions of 18, or 70 per cent., were correctly diagnosed.

From this chart it seems reasonable to conclude that of the patients entering the Cook County Hospital in coma and dying without regaining consciousness, over half of them die within twenty-four hours of admission, that few live longer than five days, and of those dying within four days, at least the accuracy of the clinical diagnosis is little affected by the element of time.

Some of the reasons for these conditions, as well as another already mentioned, the higher percentage of correct diagnoses of diseases causing death during the first twenty-four hours than for those which terminate fatally in the following three days, will be evident from study of this and the other charts.

The gradual increase in the number of correct diagnoses with lengthening of the period of observation is obviously what might be expected. In two recent attempts to emphasize the large number of incorrect clinical diagnoses, the absence of any reference to the length of time clinicians had to study the diseases they failed to recognize, we believe, has deprived these contributions of some of the attention they justly merit.[2]

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[*] From the Pathological Department of the Cook County Hospital.

[*] Report made to the attending staff of the Cook County Hospital, Chicago, at its regular monthly meeting, March 11, 1915.

[1] For many years at the Cook County Hospital, deaths in coma or conditions closely approaching coma have been the subject of medicolegal inquiry, and one of us (E. R. L.) as coroner's physician made the post-mortem examinations discussed here.

[2] Cabot, R. C.: Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies, The Journal A. M. A., Dec. 28, 1912, p. 2295. Summary of Findings, Conclusions and Recommendations with Regard to Autopsy Findings, Section III of the Report of the Committee on Inquiry into the Department of Health, Charities and Bellevue and Allied Hospitals in the City of New York, 1913.

Without assuming that other equally advantageous methods might not be employed, we have been impressed with the value, as a measure of hospital efficiency or of standardization, of the rate of ascent of curves for correct diagnoses when charted with ordinates for time under observation and abscissae, the percentage of such correct diagnoses.

Chart 2 deals with the conditions which, from the clinical examinations, were supposed to be responsible for the deaths of 85 persons who all in reality died from skull fracture. It is at once noticeable that the lower light line of correct clinical diagnoses is much closer to the heavy black line of anatomic diagnoses (skull fracture), meaning, of course, that the percentage of correct clinical diagnoses is relatively much higher for skull fracture than it is for the entire group of 200 deaths in coma from various causes.

During the first twenty-four hours, 45 died and 35, or 77.7 per cent., were correctly diagnosed. Thirteen died on the second day with 8, or 61.5 per cent., correct diagnoses. Five, or 71.4 per cent. of 7 deaths on the third day, were correctly diagnosed. The remaining 20 died on the fourth to the twelfth day inclusive, and of these, 13, or 65 per cent., were correctly diagnosed.

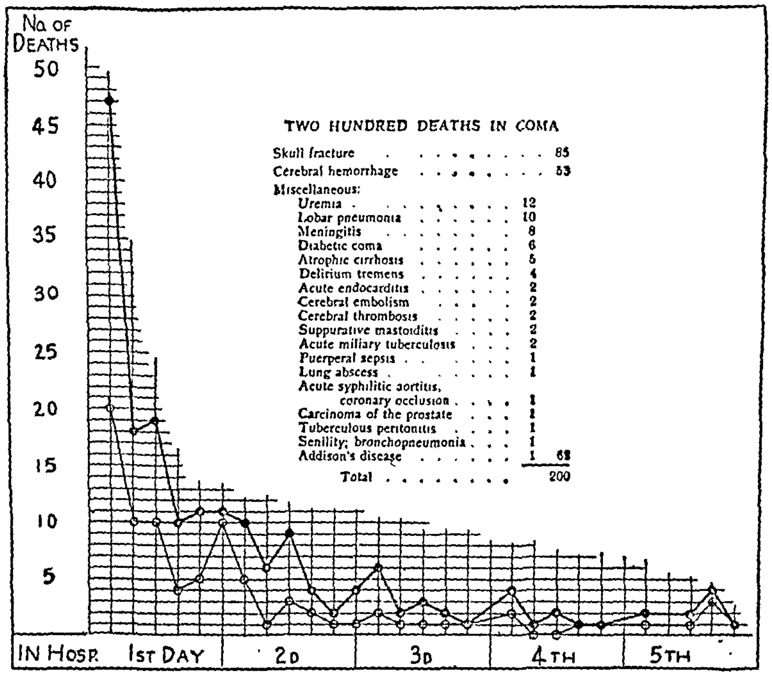

Chart 1.—Correct and incorrect diagnoses in 200 deaths from coma. Heavy line, deaths; light line, number correctly diagnosed. In this chart, seventeen deaths in coma are not plotted. They occurred as follows: One on the fifth day, 4 on the sixth day, 5 on the seventh day, 2 on the eighth day, 2 on the ninth day, 1 on the tenth day, 1 on the twelfth day, 1 on the seventeenth day. The clinical diagnoses were correct in twelve of these.

Comparing this chart with Chart 1, it seems reasonable to conclude that the clinical diagnosis of skull fracture is made with relatively greater accuracy than are the diagnoses of the various other causes of coma, and that the greatest accuracy of diagnosis is obtained in those instances of skull fracture in which the patients died within twenty-four hours of admission. As a possible explanation, it may be suggested that marks of injury very frequently give a definite clue to skull fracture; and assuming that the extent of injury to the skull, brain and external soft parts is measured directly by the severity of the external violence, we might well expect the greatest accuracy of diagnosis of skull fracture to obtain with severe injury and early death. Confirmatory of this, we find that in every history of the 61 correctly diagnosed instances of skull fracture, some injury to the head is mentioned: in 11 instances, hemorrhages from the ear or nostrils or from both places, hemorrhages into the orbital tissues from deep injuries ("black eyes") in 5, contusions of the scalp or other scalp wounds in 33, and in 12, injuries revealed by operations.

In Chart 3 we have considered 53 deaths from cerebral hemorrhage, 27, or 51 per cent., having been diagnosed correctly. Five, or 41.6 per cent., of the 12 dying during the first four hours under observation, received proper diagnoses. Of the 6 dying in the period of four to eight hours after admission, 3, or 50 per cent., were correctly diagnosed, while during the entire first day 37 died, 18, or 48.6 per cent., with correct diagnoses. Of the 9 dying on the second day, 6, or 66.6 per cent., received correct diagnoses, whereas of the 5 dying on the third day, only 1, or 20 per cent., received a correct clinical diagnosis. Six, or 75 per cent., of the 8 dying from the fourth to the tenth day were correctly diagnosed.

One of the noteworthy features of Chart 3 is the frequency of the diagnosis of uremic coma. Of the 53 instances of cerebral hemorrhage, 16, or 30 per cent., were called uremia; or, to state it in another way, of the 26 mistaken diagnoses of cerebral hemorrhage, uremia was the clinician's conclusion in 61.5 per cent. of these errors. This frequent selection of uremia from all the causes of coma as a diagnosis for spontaneous cerebral hemorrhage has led us to the review of conditions indicated in Chart 4, in which the 46 deaths in coma diagnosed uremia are dealt with. In this chart, the upper heavy line represents the number of deaths and the time when they occurred, the lower lighter line the number correctly diagnosed. One death from cerebral hemorrhage occurring on the seventeenth day is not charted. One of the interesting features of these deaths supposedly from uremia is the correctness of 5 diagnoses of this form of death on patients under observation four hours or less, 62.5 per cent. of all the correct clinical diagnoses of uremic coma.

The following brief summaries pertaining to deaths from uremia correctly diagnosed and to conditions incorrectly regarded as uremia are presented because uremia is a clinical conception for a variety of anatomic alterations and so different in this regard from some of the other causes of coma, such as fractured skull or apoplexy; these summaries also illustrate how the conclusions used in the charts have been arrived at. Only the pertinent changes found at the post-mortem examination are mentioned.

CORRECTLY DIAGNOSED UREMIA

Case 1.—A. N., a man aged 56, entered the hospital in a dying condition with a history of frequent urination and alcoholism. Examination of a catheterized specimen of urine revealed a large amount of albumin and many pus cells. Death occurred after fifty minutes. The clinical diagnosis was uremia and alcoholism.

Anatomic Diagnosis.—Old pyelonephritis and pyelitis; right nephrolithiasis; extensive replacement of renal parenchyma by perirenal adipose tissue; marked edema of the brain and lungs.

Case 2.—E. N., a young man of 19, entered the hospital in deep coma. There was a general subcutaneous anasarca, a urinous breath, high-tension pulse, muscular twitchings, and the urine contained albumin in considerable amount. He died in seventy minutes. The clinical diagnosis was uremia.

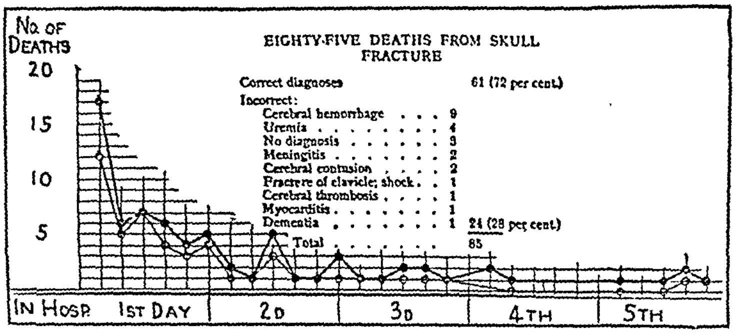

Chart 2.—Conditions which clinically were supposed to be responsible for the deaths of eighty-five persons who died from skull fracture. Heavy line, anatomic diagnoses; light line, correct clinical diagnoses. In this chart, twelve deaths from skull fracture are not plotted. They occurred as follows: 1 on the fifth day, 3 on the sixth day, 5 on the seventh day, 2 on the ninth day, 1 on the twelfth day. The clinical diagnoses were all correct except three (two cerebral hemorrhage, one dementia).

Anatomic Diagnosis.—Chronic diffuse nephritis, "mottled kidneys"; marked hypertrophy of the left ventricle; anasarca.

Case 3.—M. K., a woman, aged 29, entered the hospital in an unconscious condition with general convulsions and a history of having been ill one day. No noteworthy clinical observations were recorded aside from the diagnosis of uremia. Death occurred in three hours.

Anatomic Diagnosis.—Chronic diffuse nephritis; "small red kidneys"; edema of the brain; acute edema of the lining of the stomach, small bowel and rectum; ulcerative tuberculosis of the left lung with miliary tuberculosis of the cervical lymph nodes.

Case 4.—P. S., a housewife, aged 44, entered the hospital with a diagnosis of uremia. From the husband it was learned that she had complained of pain in the abdomen, back and shoulders and a headache for two weeks. She was confined to her bed with chilliness and some fever and frequent attacks of vomiting. While formerly she had been obliged to urinate four or five times a night, she had not urinated for a week previous to admission, and four days previous she had passed into coma. The husband stated that a stone had been removed from the right kidney eight years before. There was some enlargement of the heart to the left. No urine was obtainable by catheterization. The blood pressure was 148. Death occurred in two hours with a diagnosis of uremia.

Anatomic Diagnosis.—Absent right kidney; old nephrectomy scar; compensatory hypertrophy of the left kidney; nephrolithiasis; purulent cystitis; ascending infection of the urinary tract; left hydronephrosis; edema of the brain and lungs.

Case 5.—J. S., an emaciated man apparently past middle life, and in coma, had continuous clonic and tonic generalized convulsions. His blood pressure was 155 and his urine contained abundant albumin, many pus cells and a few casts. Aside from the enlargement of the heart to the left there were no other noteworthy clinical observations. The diagnosis was uremia, and death occurred twenty-nine hours after admission.

Anatomic Diagnosis.—Chronic diffuse nephritis with marked so-called secondary contraction of the kidneys; marked edema of the brain; generalized anemia; edema of the right leg and ankle; emaciation; thrombo-ulcerative endocarditis; slight mitral stenosis; hypertrophy of the heart; fibrous myocarditis.

Case 6.—M. B., a bricklayer of middle age, entered in coma. He was cyanotic and there was some edema of the face and a marked hypostatic edema of the lungs. The clinical diagnosis was uremia. Death occurred one hour after entrance.

Anatomic Diagnosis.—Chronic parenchymatous nephritis, large white kidneys; hypertrophy of the left ventricle; edema of the brain and lungs; anasarca.

Case 7.—W. L., a teamster, aged 68, entered the hospital in a semicomatose condition with indefinite complaint of pain and tenderness in the abdomen. Attempts at catheterization were unsuccessful and accompanied by bleeding from the urethra. He died in thirty-six hours. The diagnosis was uremia.

Anatomic Diagnosis.—Stricture of the urethra; false passages of the urethra; ascending urethro-cysto-ureto-pyelo-nephritis; chronic interstitial nephritis; large retention cyst of the lower pole of the right kidney; marked edema of the lungs and brain.

Case 8.—S. B., a housewife, aged 54, entered the hospital apparently in alcoholic coma. No evidence of uremia presented itself aside from the presence of a large amount of albumin and pus cells in the urine. Death occurred in four hours. The diagnosis was alcoholism and uremia.

Anatomic Diagnosis.—Stones and suppurative pyelitis of the left kidney; acute fatty changes in the right kidney; indurative paranephritis and para-ureteritis; edema of the lungs; moderate edema of the brain.

INCORRECTLY DIAGNOSED AS UREMIA

Case 9.—M. L., a laborer, aged 60, entered the hospital with the diagnosis of uremia. A suggestion of right facial palsy was noticed. The left pupil was dilated, irregular and larger than the right. Neither pupil reacted to light. There was a bilateral Babinski reflex and increased patellar reflexes, especially on the left side. The urine contained some albumin and a few hyaline and granular casts. The spinal fluid was under increased pressure but otherwise apparently normal. There was a polymorphonuclear leukocytosis of 11,000, and the temperature was as high as 101.4 F. Death occurred in twenty-six hours with a diagnosis of uremia and chronic nephritis.

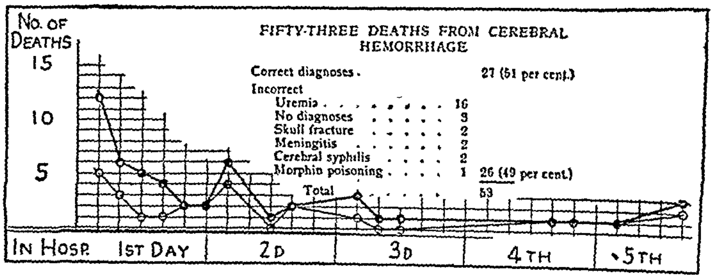

Chart 3.—Correct and incorrect diagnoses in fifty-three deaths from cerebral hemorrhage. Heavy line, anatomic diagnoses; light line, correct clinical diagnoses. In this chart, two deaths from cerebral hemorrhage are not plotted. They occurred as follows: 1 on the sixth day, 1 on the tenth day. A clinical diagnosis of tuberculous meningitis was made in the first; in the second, the clinical diagnosis was correct.

Anatomic Diagnosis.—Marked edema of the brain; marked emaciation; cloudy swelling and fatty changes of the liver and kidneys; catarrhal prostatitis and (left) spermatocystitis; nodular hyperplasia of the prostate gland; gummatous scars in the leptomeninges.

No hemorrhages or other gross lesions were found when the hardened brain was sectioned, and the only gross change in the kidneys was "slight fetal lobation markings."

Case 10.—H. H., a middle-aged man, entered the hospital in coma and convulsions. After entering the ward the convulsions ceased, and he presented no noteworthy physical signs which would lead one to a diagnosis. His blood pressure was 220, the urine contained abundant albumin and many hyaline and granular casts. Without regaining consciousness he died in seventy-two hours with a diagnosis of chronic interstitial nephritis, uremia, mitral insufficiency and myocarditis.

Anatomic Diagnosis.—Gummas of the liver; syphilitic aortitis; beginning aneurysm of the arch and thoracic aorta; marked edema of the brain; turbid cerebrospinal fluid; sclerosis of the coronary arteries; fibrous myocarditis; left ventricular hypertrophy; marked fatty liver; slight edema and minute gummatous scars in the leptomeninges; bronchopneumonia of the dependent portions of both lungs.

Case 11.—J. N., a laborer, aged 45, entered the hospital with a diagnosis of nephritis, myocarditis and alcoholism. From an attendant it was learned that he had been ill for nearly ten days and had become unconscious two hours previous to entrance. The pupils were inactive to light. There was marked anasarca of the lower extremities as high as the knees. The urine contained albumin, many epithelial cells, erythrocytes and leukocytes and epithelial casts. There was a polymorphonuclear leukocytosis of 24,600. The blood pressure was 218. No spinal puncture was done. The temperature rose to a height of 104 F. rectally, and death occurred in twenty-eight hours. The clinical diagnosis was chronic interstitial nephritis with exacerbation and uremia, edema of the lungs, tertiary syphilis and delirium tremens.

Anatomic Diagnosis.—Fibrinopurulent leptomeningitis, acute interstitial and chronic diffuse nephritis with slight so-called secondary contraction; hyperemia of the renal pelves; hyperplasia of the spleen; anasarca; cloudy swelling of the myocardium; slight hydropericardium; marked edema of the lungs; slight bronchopneumonia of the posterior portions of the lower lobes of both lungs.

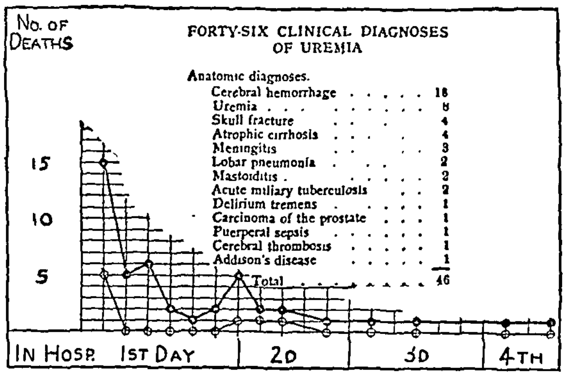

Chart 4.—Correct and incorrect diagnoses in forty-six deaths from uremia. Heavy black line, deaths; light black line, correct diagnoses. In this chart, one death in coma is not plotted. It occurred on the seventeenth day.

In this instance it may be that uremia in a measure contributed to death. That the coma was due to the meningitis is also equally admissible.

Case 12.—G. N., an old man, was admitted to the hospital with the diagnosis of uremia and a history that he had been ill for five weeks. He was obese and there was general anasarca. The pupils were contracted and inactive to light, and there was a slight general icterus; death occurred in twenty-two hours. The diagnosis was organic heart disease and uremia.

Anatomic Diagnosis.—Marked atrophic cirrhosis of the liver; chronic parenchymatous nephritis; marked anasarca; marked edema of the brain; moderate generalized icterus; hyperplasia of the spleen; marked syphilitic aortitis; atrophic catarrhal gastritis.

In some degree the changes in the kidneys commonly referred to as parenchymatous nephritis are present with cirrhosis of the liver; and such alterations, tense parenchyma, slightly icteric and a little mottled wide cortex were the only gross changes in this instance and in the two following; nor were there noteworthy gross changes in the brain in any of these individuals with cirrhosis of the liver.

Case 13.—Unknown old man entered the hospital as having uremia and jaundice. His legs were very edematous, the liver was enlarged and hard and there was a marked icterus. Death occurred in fifty-five minutes. The diagnosis was "atrophic cirrhosis? uremia?"

Anatomic Diagnosis.—Cirrhosis of the liver; icterus; hydroperitoneum and hydropericardium; submucous hemorrhages of the gastro-intestinal tract; chronic catarrhal gastritis.

Case 14.—D. H., a clerk, aged 36, entered the hospital in a semicomatose condition with a diagnosis of cirrhosis of the liver. On entering the ward, supra-orbital pressure aroused him so he told his name. The liver was enlarged and there was some edema about the ankles. He died within two hours. Death was thought to be due to uremia complicated by cirrhosis of the liver.

Anatomic Diagnosis.—Atrophic cirrhosis of the liver with fatty infiltration; passive hyperemia of the mucous membrane of the stomach and bowel; chronic hyperplasia of the spleen; anasarca.

Case 15.—K. P., a housewife, aged 26, was brought to the hospital in a dying condition. She suffered a persistent hiccup and was markedly jaundiced. The abdomen bulged, especially in the upper right quadrant. The liver was enlarged and palpable, and the splenic dulness extended to the border of the left costal arch. There were numerous purplish spots on the extremities. There was no edema. The patient died in seven hours. The diagnosis was uremia.

Anatomic Diagnosis. — Puerperal uterus and mammae; gangrenous endometritis; recently dilated cervix uteri; icterus; corpus luteum of pregnancy in the left ovary; large fatty liver.

Case 16.—R. C., aged 80, and greatly emaciated, was brought to the hospital in coma. He was admitted on a diagnosis of uremic coma. The pupils were unequal and inactive to light. There was no edema. A suprapubic mass was palpated, and the prostate gland was noticed to be greatly enlarged and nodular. The temperature was 100 F. rectally on admission. Death came in fifty-five minutes and was ascribed to uremia.

Anatomic Diagnosis.—Carcinoma of the prostate; blood in the urinary bladder; anemia; extensive secondary metastases in the periaortic lymph nodes; emaciation; anasarca of the ankles.

With carcinoma of the prostate, as with enlargements of the prostate from other causes, an ascending infection of the urinary tract is not infrequent. Many authorities attribute death under such conditions to uremia.[3] With this prostate carcinoma there was no ascending infection.

It has long been recognized by persons with extensive experience in the making of post-mortem examinations that the diagnosis of uremia is frequently made by clinicians and rarely verified by the necropsy. Cabot, in the article already referred to, has commented especially on this defect in clinical diagnosis. In the report regarding conditions in the New York hospitals,[2] the following occurs:

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[3] Miller, Friedrich: Ueber Morbus Brightii, Verhandl. d. Deutsch. path. Gesellsch., 1906, ix, 64.

The large percentage of incorrect clinical or ante-mortem diagnoses in Bellevue is partly due to the lack of medical knowledge among our better class of practitioners, and partly to hasty and insufficient examinations. Too much reliance on inexperienced house physicians and interns also accounts for a portion of these errors.

As stated in the beginning, this is an effort to throw some light on the relative frequency of the various forms of coma. It is imperfect, as previously noted, in not including some of the comas which offered no problem to the clinicians, the explanation being well-verified accounts of the taking of morphin, of exposure to illuminating gas, etc. It is also imperfect in that during the period during which these 200 deaths occurred, still others died in coma whose bodies were not examined, the period of clinical observation being so long and the understanding of the disease so adequate that their deaths were not a subject of medicolegal inquiry, or being made the subject of such inquiry, post-mortem examinations were not indicated without request of relatives; in still another class of deaths, not medicolegal, the cause of coma long observed and well explained clinically was not verified because of failure to secure consent for a necropsy. These considerations should be kept in mind in any attempt to utilize the information in this review.

Regarding the diagnosis of uremia, it will be noted from the protocols that it was correct in a number of instances when death occurred in fifty minutes, seventy minutes, one hour or other similarly brief periods after entering the hospita [illegible] short to make comprehensive [illegible] must be reckoned with as in the nature of "chance shots." It may be argued that diagnoses made under such conditions deserve no serious consideration; but, on the other hand, it has seemed to us that the tendency to deal with the diagnosis of uremia in this haphazard manner denotes a serious defect in the teaching of medicine, an ignorance of the comparative infrequency of uremic coma; finally, it should be stated that accurate figures for the relative frequency of coma of various sorts would constitute an equipment for the differential diagnosis of coma comparable in its value with the mortality statistics so useful to surgeons in making statements regarding the prognosis for operations they undertake or advise.

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THE THERAPEUTIC USE OF COLD

WITH ESPECIAL REFERENCE TO THE CLIMATIC TREATMENT OF TUBERCULOSIS

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The production of anesthesia by freezing, the relief of pain by heat or cold, the reduction of pyrexia by cold baths, evaporation of water or alcohol, etc., are all familiar practices; so also are the cold morning sponge, spray, shower or tub given for the general tonic effect. Since little attention, however, has in the past been paid to hydrotherapy in our medical schools, such measures are not always accurately prescribed nor given the serious attention which they deserve.

THE PHYSIOLOGIC EFFECTS OF COLD WATER

As the effect of cold has been most carefully studied by the hydrotherapeutist, and as water offers the most convenient medium for laboratory experimentation, let us first consider the effect of cold water. Without entering into physiologic detail we may understand by the word "cold," those temperatures which lower the temperature of the human body. (All those temperatures below a neutral zone which has no effect on body heat.) In his work on hydrotherapy Bottey[1] gives the lower limit of this neutral zone as 91 degrees F., subject, of course, to some variations with individuals and mode of application.

Extremely cold water (32 to 52 F.) when applied to the skin is at first more or less painful, then with the anemia which results with continued application there occurs a degree of anesthesia. The same is true with slightly higher temperatures—the sensation of a douche at 60 F. resembling the anesthetic effect of menthol.

Cold water applications to the body as a whole for therapeutic purposes are given in practice between 45 and 90 F. and the physiologic effect depends on the following principles: 1. Primary refrigeration of the skin and superficial tissues, a physiologic phenomenon. 2. Refrigeration due to nervous reflex action. 3. Elevation of the central temperature resulting from the flow of blood from the skin to the central organs. 4. Elevation of central peripheral temperatures of nervous origin.

These are, in brief, the main physiologic features resulting from an application of cold. The best results are obtained when the cold is applied suddenly; that is, the transition from warm water which may precede the cold, as in the Scotch douche, should be immediate and not gradual. So it is after exercise or after the hot air bath used as a preparation for a cold application; the body should not be first allowed to cool, but the cold should be applied at once.

The aim of all hydrotherapeutic use of cold is what is known as the "reaction," and includes circulatory, thermic and reflex organic phenomena—a true tonic effect on the nervous system, the heart and the lungs. Quoting Bottey,[1]

> A series of reflex effects upon the circulation both local and general, contraction of striated and unstriated muscle fiber, stimulation of organic and interstitial combustion, metabolism, secretion and excretion . . . a great physiological synthesis which results finally in increase of the general vitality, greater activity of the functions of digestion and assimilation, increase of muscular force and aptitude for work, a sensation of wellbeing, of physical, mental and moral balance, a remarkable ensemble, the result of hydrotherapy.

THERAPEUTIC EFFECTS OF COLD WATER

While the nervous system regulates all the organic processes of the organism and is in itself dependent on the other cells of the body for existence, they are not able to function without it. In treating a diseased body we cannot afford to have in mind any group of cells or any organ to the exclusion of the intricate system of cells which control their activity, their food supply, their disposal of refuse, etc. Thus the treatment of disease includes the treatment of the nervous system of the patient, and what medicine, therapeutic method or device can compare with cold when it is necessary to whip up a flagging nervous system?

"Better than any other therapeutic method" says Scheuer,[2] "better than any agent of materia medica does the stimu-

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[1] Bottey, F.: D'Hydrothérapie Médicale, Paris, E. Plon, Nourrit & Co., p. 68.

[2] Scheuer: (de Spa), Essai sur l'action physiologique et therapeutic de l'hydrothérapie, etc., Paris, A. Delahaye & E. Lecrosnier, 1885.

lating action of cold upon the cutaneous envelope include with a single stroke the whole nervous system, proceed, so to speak, to the simultaneous mobilization of all the elements of the cerebrospinal axis. Our best, our most faithful medicaments, opium, digitalis, belladonna, ergotine, etc., are endowed only with elective properties on this or that section of the neuron; the anesthetics themselves control the whole only after having divided it into segments to influence part by part. The general stimulating applications of hydrotherapy alone reach and subjugate it at once in all its parts—the whole nervous system from its finest eccentric ramifications to each of its central constituents is stirred up, excited, animated."

All this will, I think, be conceded when the agent is cold water applied under prescribed conditions and by skilled operators to subjects who have the power to react. Also, it will be granted that the methods of cold water treatment are applicable to both acute and chronic disease.

PHYSIOLOGIC EFFECTS OF COLD AIR

As we bathe constantly in air modified only by our clothing, the effects of cold air are not as a rule considered by themselves, but are treated by the climatologist as one of the factors in his problem. Because the subject of climatology is a complex one, there is not complete uniformity in the statements of various authors as to the exact physical and physiologic phenomena taking place.

Particularly are the results modified by psychic influence, and by the effect of wind and humidity on sensible temperatures as contrasted with physical temperatures. The effects also vary with races and individuals, and even in these the variation is not constant, because under the influence of fatigue, hunger, depressing emotions, toxic states, and all similar causes which interfere with the power of the individual to respond to the stimulating effects of cold, the physiologic reaction does not occur, or, if present, is but slight. This reaction is essentially the same as that referred to when speaking of hydrotherapy, and in general follows the same laws. However, heat abstraction by moist air is often greater than the needs of the organism, or exceeds the power of the heat-producing mechanism to meet its demands when in the form of moist, cold air indefinitely prolonged.

Exposure of the body to dry, cold air following a period of exposure to relative warmth has an effect similar to the hydrotherapeutic application of cold, that is, there is an increased loss of bodily heat followed by a demand for more. This demand is met by increased oxidation of tissue, metabolic processes become more active and there is improvement in nutrition.

THERAPEUTIC EFFECTS OF COLD AIR

While cold air is somewhat similar in its effects to cold water, we are less accustomed to consider it as having any specific therapeutic virtues. However, the "cold air bath" has been made use of in European health resorts.

We have inherited such strong prejudices against cold air, "night air," draughts, and "taking cold," that even in the case of tuberculosis, in which it is one of the chief therapeutic aids, a dozen or more years of fresh air propaganda has made but little impression on those who have not learned of its benefits by personal experience. Many probably would be unwilling to concede that much of the reputation for the virtue of fresh air belongs to cold air.

In tuberculosis and other similar infections in which it is held that recovery depends on the elaboration of products which are the result of reactions of living cells, cold water offers an ideal means for stimulating metabolism and inducing healthful reactions, or, in other words, increasing "vital resistance." Frequently, however, none the less ideal is the cold air of the mountains bathing the body nightly after the sufficiently relaxing heat of the day. The alternation of night and day, winter and summer being, perhaps, the earliest form of "Scotch douche."

Thus it would seem that when we desire to promote nutrition by climatic means we should seek a climate subject to variation in temperature, but without excessive moisture.

Bonney[3] of Denver, who emphasizes the importance of variability and dryness, sums up in these words: "In general, the influence of climate upon nutrition is largely contingent upon the degree of its heat abstracting capabilities, which feature is defined by Huggard, in his admirable treatise upon the physiology of climate, to be the one fundamental principle of climatotherapy."

Further quotations might be offered to show that among physicians who have given the matter their attention, there is a general unanimity of opinion as to the beneficial effects of cold on an individual who is able to react.

INDICATIONS FOR THE USE OF COLD

Hippocrates[4] says that "Of natures (temperaments) some are well or ill adapted for summer and some for winter." Though I am satisfied that he would not agree at all with my main argument, I am tempted to use the quotation to call attention to the fact that in attempting to obtain the beneficial effects of cold a physician must consider the personal equation of his patient as well as his disease.

If there is, then, this temperamental difference, how are we to determine when to use cold as a therapeutic measure?

My opinion is that there are very few exceptions to the rule that all cases in which there seems to be an indication for the use of cold can be safely treated by some hydriatic procedure. And that cases can often be educated by such means from a condition in which the reaction is poor to one in which there is a good reaction. This opinion is based in part on the experience gained in years of almost daily use of hydrotherapeutic means, with a total of several hundred cases, including both acute and chronic diseases.

The procedures referred to are described in standard works and are too numerous even for a complete list to be given here. The more important ones are "the cold hand rub," "mitrub," "the sponge," "the wet sheet," "the pack," "the spray douche." In pulmonary tuberculosis these are suitable for first stage cases, the douche giving way to the milder measures in case of persistent hemoptysis or fever.

In the second stage the patient may take the douche only after having been gradually educated up to it, beginning with the "hand rub" at 77 F. The relative contra-indications are the same as in the first stage.

In the third stage sponging twice daily is usually the only method to be used. Starting with a temperature of 80 degrees, this is lowered a little on successive days until a temperature of 63 F. is reached. Careful friction follows each sponge. Exceptional third stage cases may do well under the douche.

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[3] Bonney, S. G.: Pulmonary Tuberculosis and Its Complications, Philadelphia, W. B. Saunders Company, p. 814.

[4] Hippocrates: Aph., iii, 2.

It is not my purpose to discuss in detail the technic of hydrotherapy, but merely to call attention to the therapeutic indications for both cold water and cold air in tuberculosis.

The treatment with climatic cold is not so generally applicable. Certain cases do not do well in cold climates. Some of these might do well if educated to a proper degree of reaction by suitable hydriatic procedures.

As has been pointed out by Woodruff,[5] Huggard,[6] and others, racial characteristics determine to a large degree the ability of the individual to adapt himself to a new climate, whether hotter or colder than the one from which his ancestry came.

It has been frequently observed that, as Huggard says,

> A man becomes acclimated readily only in countries having very nearly the same mean temperature as the country to which his race belongs. Individuals may live in seeming health in climates much hotter or colder than their own, but their posterity does not fare equally well; their descendants melt away, and hardly a survivor remains to the third or fourth generation. The attempt to colonize directly a land having a mean temperature widely different from that of the native land of the colonists has always ended in failure.

Temperature has been a very important, if not the chief obstacle to colonization of the tropics by the northern races. Tropical diseases, added to those already inherent, doubtless have done their part, and Huggard's statement, just quoted, may seem to be extreme, but it points out a cause for the so-called temperamental idiosyncrasy which may consist physiologically in a lowered neurovascular tone. This condition has been met by limited residence in colder, or the native climates, as when the English limit their stay in India and return home on furlough, and by cold bathing, etc.

When we come to apply these facts and conclusions to disease and its treatment we may say that we have in cold a powerful neurovascular tonic particularly adaptable to chronic forms of disease, such as tuberculosis, and that climatic cold is often the most practical form available, being particularly desirable for those whose ancestry lived in a climate colder than that in which the patient now finds himself.

When the change is not extreme, as when one migrates from Maine or Minnesota with an average annual mean of 40 F. to Southern California at 60 to 65 F. the effect may not be apparent in the healthy in one generation; but when tuberculosis is present, especially in the second generation, it would seem that a reeducation of the neurovascular system is of prime importance, and that such persons should resort to hydrotherapy, higher latitudes, or higher altitudes.

My personal experience is limited to practice in four states between the mean annual isotherms of 40 and 60 F. I have always found the out-door life practicable for tuberculosis patients, though decidedly more expensive and difficult in the New England States, with the disadvantage of nearness to the sea and sea level. Even there the winters seemed to be more favorable to the treatment of the disease than the summers. In the higher and drier mountain climate of California, with a higher temperature, the cold of winter has been welcome as an important means to many a cure.

THE CLIMATIC PRESCRIPTION

The choice of a suitable climate is not always made by the physician for his patient. Frequently patients come to their "medical adviser" with ready-made climatic prescriptions just as they do with ready-made diagnoses, expecting him to agree with them that their "complaint" is so and so, and that they need to go to such and such a resort. He complacently agrees and they go wherever they choose. Sometimes the choice is made of a warm climate because it is easy to live out of doors—a worthy aim, but the ease of living out of doors is a relative matter which may vary between wide limits, and what may seem to be justifiable as reasonable animal comfort may in reality prove fatal luxury.

In conclusion I would say that cold is indicated as a neurovascular and general tonic in tuberculosis. That it may be used in some form in all stages, and that early cases should be given the benefit of the therapeutic use of cold water or cold air, or both.

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THE PROBABLE CAUSE AND LOGICAL TREATMENT OF EPILEPSY

A PRELIMINARY REPORT

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About seven years ago, I began the surgical treatment of constipation of mechanical origin due to such conditions, for example, as displacements, malformations, adhesions, angulations, plications, dilatations, atrophies and various distortions of the intestines. The general conditions calling for operative correction of the intestines were not so much the constipation itself as the constitutional states that were caused by the constipation. Or, going a step further back in the chain of etiologic sequence, it became evident that the toxic state of the system, the word "toxic" being used in its original and broad sense, must have originated in the intestines either through (*a*) deleterious additions to the food before ingestion, or (*b*) as the result of secondary chemical changes in the food after ingestion, or (*c*) as the consequence of bacterial activity in either the normal or adventitious flora of the intestinal tract, or (*d*) as the result of the cooperation of any two or all three of these sources of possible toxic supply.

In the course of this experience, I early encountered certain cases in which epilepsy occurred as a complication of constipation and of other and more usual constitutional states that were caused by constipation. I did not at first recognize it as having even a probable sequent relation to the condition of the intestines which was demonstrably the cause of the constipation. It was, in fact, totally disregarded in such of these early cases as came to operation. The sequel, however, finally forced on me a recognition of three significant facts. The first was a fact well known to the medical profession, namely, that epileptics are very generally constipated, or, as I found to be true, all of them are constipated. The second was that certain epileptics once permanently cured of their constipation ceased to have epilepsy, another fact in consonance with the general experience of the profession to the effect that laxatives are the best remedies with which to minimize both the frequency and the severity of epileptic attacks. The third and equally significant fact impressed on me was that, while all epileptics are constipated, only a relatively few constipated persons have epilepsy.

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[5] Woodruff, C. E.: The Effects of Tropical Light on White Men, New York, Rebman Company.

[6] Huggard: Handbook of Climatic Treatment, etc., New York, MacMillan Company.

The explanation of these facts taken together, and especially of the third fact considered either in relation with the others or by itself, logically required the existence of another etiologic factor, the presence of which would account for the existence of epilepsy under given conditions in one case, and the absence of which would account for the absence of epilepsy under the same conditions in another case. In this connection the toxic factor that I had long recognized to be present not only in all cases of chronic constipation of mechanical origin, but especially in all epileptics, assumed a new and more potential significance. It was apparent, however, that while the general principle of toxicity obtained, there must be some definite or specific poison or toxin to account for the equally definite and specific phenomena presented in these cases.

This view was held in mind in the further development of my surgical management of the perfectly obvious lesion presented in all of these cases, namely, mechanical interference with the normal activity of the bowels, the only lesion, by the way, which has been demonstrated in 100 per cent. of epileptics that have come under my observation. It so happened that I had treated all of my earlier cases by replacement and fixation of the colon after my method of retroperitoneal implantation, the details of which I have already reported.[1] When I later incidentally ascertained that these patients, five in all, had been free from epilepsy following operation, for periods varying from seven months to more than three years, I was impressed, first, that the whole difficulty had been in the colon and, second, that the restoration of the fecal current had resulted in carrying off the poison, whatever its character. I then found a patient of whose epilepsy I had taken no account, but in whose case I had successfully operated for intestinal stasis four months before, but in which the epilepsy had only been reduced from grand mal to petit mal. In the light of this case it seemed to me that, considering the gravity of the disease and the obvious fact that the colon was the seat of the difficulty, the more logical procedure would be to remove the colon. I then did colectomy in my next two cases, both of which had grand mal, with a satisfactory surgical recovery in both instances. In both cases there was immediate cessation of the epileptic attacks. In one there have been two slight attacks of petit mal in the six months that have since elapsed. The other patient, who had had from one to four attacks daily before operation left the hospital at the end of three weeks without having had a seizure. She continued well, her bowels moved freely several times daily, she ate well, and was up and about when, at the end of three weeks, she suddenly developed status epilepticus from which she died at the end of seventy hours. A necropsy revealed an acute dilatation of the duodenum as the only lesion. It was caused by traction exerted by and through the mesocolon from the weight of the rather heavy omentum that I had left after the colectomy. This taught me two important lessons, namely, first, what I had really known before, that the ptosic condition of the mesocolon, whether effected by the weight of a loaded colon or by that of a fat omentum or by both, could produce obstructive angulation of the duodenum, and second, that the specific poison of epilepsy, whatever its character, was elaborated in the duodenum—a conclusion which conforms to the general views of Bloodgood, Draper and others with reference to the duodenal origin of other and non-specific intestinal toxins.

Another lesson that I learned from these and other cases was that, although surgically successful, colectomy, whether done on epileptics or non-epileptics, was an operation involving much traumatism and consequent surgical risk. It seemed to me, therefore, that it would be wise practice to do the colectomy at two stages, the first being simply an ileosigmoidostomy or short-circuit procedure, and the second being the removal of the colon, a considerable interval being permitted to intervene between the two procedures. As I had previously done a number of short-circuit operations in non-epileptics with no unpleasant sequelae and therefore with no necessity for a secondary operation, I felt that, in these epileptic cases, I would be able by the same procedure to give my patient the benefit of two chances. One was that the second half of the colectomy, or the colectomy proper, might not need to be done, and the second was that, if a colectomy had to be done, the surgical risk would be diminished by the fact that it was already half done. I accordingly did several primary ileosigmoidostomies in this class of cases. As expected, the operation was followed by much less shock and the patients made a more prompt convalescence than in the original colectomy cases. The constipation was in all instances promptly overcome, and very generally there was an immediate disappearance of the epileptic seizures. In one case, the home physician wrote me that his patient seemed like a new man, "one who had thoroughly recovered from a prolonged alcoholic debauch"; in another, there had been only a few "sensations" instead of the former convulsive attacks; in a third, there had been no improvement, while others were well and have since remained so. In the case of the man first mentioned, who seemed so perfectly well, there suddenly occurred a series of violent convulsive attacks, and the same thing happened a little later to the patient who had had only "sensations." I advised both patients to return for the secondary operation, the colectomy, as I felt that the sudden change in the trend of both cases toward recovery was due to the reloading of the colon by the regurgitation of feces above the point of anastomosis. This proved to be true. The colon with contents in one case weighed 6 pounds; in the other, 4 pounds. The lesson taught by this experience, as contrasted with that in non-epileptics was, first, that the feces coming down from the small intestines were extraordinarily toxic, that the reloading of the now inactive colon with this epileptic poison resulted in an "overdose" and the consequently aggravated seizures and, finally, that while ileosigmoidostomy might be a relatively safe operation in non-epileptics, the toxicity of the intestinal content made it an unsafe measure in epileptics.

While all this was going on, a rapidly increasing experience had brought me an increasing familiarity with the clinical picture of epilepsy in all its forms. The first thing in the way of a generalization that impressed me was the complete and surprising absence of the hereditary factor in all the histories. In only one instance was there more than one case in one family. I was also unable to find any case of so-called "traumatic" epilepsy of that type usually implied by the term, namely, of injury to the head, although I found numerous cases in which a fall or strain or other injury was the manifest cause of the splanchnoptosis present. The old type of so-called "idiopathic" epilepsy has, of course, gone the way of all idiopathic things, such for instance as idiopathic peritonitis, until the very word itself is on the index expurgatorius of all physicians with intelligence enough to know that every effect is the result of a cause.

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[1] Reed, C. A. L.: Fixation of the Ptosic Stomach and Colon by Retroperitoneal Implantation, The Journal A. M. A., March 28, 1914, p. 999.

On the contrary, every phase of the disease seemed to emphasize the existence of a poison of intestinal origin. There were the hebetude and mental depression which always occur when there is hyperabsorption of intestinal toxins—the word toxin being here used in its new and restrictive sense of a poison of bacterial origin. There was the vertigo, often without, often with an instant of unconsciousness, but still vertigo, very similar to what healthy persons experience when they are "bilious," which is another word for torpidity and hyperabsorption. There were the convulsions not entirely unlike those of tetanus, of known toxic origin, or not entirely unlike those produced by strychnin, a known poison. There was the dilatation of the pupils, not entirely unlike that which occurs in advanced toxemias. There was the high blood tension, something like that which occurs in the known acute infections. There was the temperature vacillation, less in range but still a vacillation, such as occurs in recognized septic states.

In other words, epileptics have a low mean average of temperature—97 plus rather than 98 degrees—with a tendency to vacillate between 96 and 99.5. These lower extremes sometimes cause a feeling of chilliness or even slight rigor, although the higher reaches, within the limits indicated, seldom cause a feeling of heat. The vacillation reaches its maximum just before a seizure or, more properly, an explosion, after which the temperature again approximates the mean average of that particular case.

There was the salivation not unlike the salivation in hydrophobia of known bacterial origin. There are the authentic cases of epilepsy cured by an attack of typhoid fever, a process suggestive that it was the antibodes thus formed that destroyed the original infection. There was the constant tendency to the formation of gas with a peculiarly, I should say distinctly, offensive odor. This gas-forming process was most marked near or at the time of convulsion, when the odor seemed to permeate all the secretions — a condition suggestive of the odor of burnt powder following an explosion.

Then, there were other facts that impressed me. The influence of a protein diet in making epilepsy worse may have some relation to the fact that protein mediums are especially favorable to bacterial cultivation. As I have stated, in only a single instance have I encountered a family with more than one epileptic in it. If the poison were of chemical or non-bacterial origin, why were not other members of the family, eating the same diet, living under the same conditions, affected the same way? If it came from that source, why did it not come sooner or later? The cause of epilepsy must be as persistent as its effects. If it were of chemical, that is, non-bacterial origin, why should it persist after the particular food to which it was attributed had no longer been used. For it is quite inconceivable that offending food should continue to be used through months and years and, particularly, without affecting more than one member of the family during all that time. These and possibly other considerations brought me to the definite conception that the poison, a true toxin, must be the result of bacterial infection, and that the infection must be specific in character. It seemed to me, furthermore, that experiences which I have already related tended to amplify this conception. Thus, in the cases in which the epilepsy disappeared after restoration of the fecal current, it would seem that the infection had been confined chiefly, if not entirely, to the mucous surface from which it could be readily swept away by ingesta and secretions: in cases in which there were some remaining petit mal, it would seem as if there might be some remaining infection in the mucous follicles; while in those cases in which the cumulative and recumulative effects were expressed by convulsions after operation, it would seem as if there might be deep follicular or even interstitial infection, with possible contamination of the blood, with the specific bacterium or its toxin or both. These considerations having been fortified by preliminary bacterial studies of the blood and the alvine dejections as well as of the contents and walls of removed colons — the present publication of which would be premature—and having thus impressed me as being valid, it occurred to me that, in those cases in which relief from the epilepsy did not follow the restoration of the intestinal function, the principle of immunization by vaccination might be applied with advantage.

About the time I reached this conclusion, I had two more short-circuited cases in which surgical recovery with disappearance of the epilepsy followed operation, but in both of which there had been recurrence of the seizures or explosions. In one of them there had been from two to five attacks every day before operation. This patient in the midst of a perfect convalescence suddenly developed the worst case of status epilepticus that I have seen. In the other, there occurred two convulsive seizures to tell the tale that the colon had again loaded. Neither patient was in physical condition to justify colectomy even as an emergency operation. In both cases I ordered autogenous vaccination made by usual cultural methods from both the blood and the alvine secretions. The serologic work was placed in the hands of a recognized and distinguished expert, whose detailed report will appear with my final report on the subject. It is sufficient for my present purpose to say that both cases, even the status epilepticus, have completely cleared up under the treatment. It is also well for me to add that I have adopted this method of treatment as a routine in all cases, and so far with gratifying results. In the meantime the pathologic conditions are being carefully studied by a distinguished specialist in that department. His report too will be incorporated with my final record.

In view of these and other experiences, chiefly clinical, I have been brought to think that:

1. Epilepsy is caused by a specific infection, probably a bacillus of the gas-forming series.
2. The infection is located in the intestinal canal, probably primarily in the duodenum, always finally in the colon, and may be superficial, intrafollicular or

interstitial, or may, and in certain cases, probably does, involve the blood as a propagating medium.

3. The infection seems to be made effective primarily through constipation of mechanical origin.
4. The relief of the mechanical cause of the constipation with restoration of bowel function results in the cure of epilepsy in cases in which the infection is probably superficial.
5. The principle of immunization holds good in the treatment of cases in which the infection obviously lies deeper, in all of which autogenous vaccination may well be applied as a matter of routine.

This preliminary report in simple narrative form is submitted at this time in the hope that it may stimulate investigation at other hands along the same lines. In due season, I hope to lay the further details of my work before the profession. In the meantime I shall be grateful for the views of all practitioners whose experience has given them distinct opinions about the nature and treatment of a disease which has baffled science through the ages and the centuries.

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FULGURATION TREATMENT OF TUMORS OF THE BLADDER *

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It is now nearly five years since Beer made his preliminary report on a new method of treating neoplasms of the urinary bladder. During this time this method of treatment has been employed by surgeons in all parts of this country, so that it may be safely stated that for the treatment of papillomas of the bladder it has completely displaced all other methods of treatment in use prior to the introduction of this new form of therapy. This applies to the largest percentage of clinical cases. Occasionally a patient may be seen in whom cystoscopy cannot be tolerated, or, on the other hand, the bladder may be completely filled with papillomas, so that intravesical manipulation cannot be carried out. In this very small group of cases it becomes necessary to resort to suprapubic cystotomy, and to treat the tumors by fulguration through the suprapubic opening, or possibly by a resection of the tumor with sparking.

The results of this mode of treatment for bladder papillomas have been so uniformly successful that modern urinary surgery absolutely demands this form of treatment in these types of tumors. Although the method is not so universally employed in Europe as it is in this country, the results of its use are being reported more and more frequently and it is safe to assume that within a short time it will enjoy the wide application abroad that it does in America. Nothing has stimulated the general interest in the treatment of papillomas as has the use of the high-frequency current, which fact is evidenced by many recent publications dealing with this subject.

Synonyms.—One of the striking features of a review of the literature of this subject is the various names that have been used by different authors in their writings. Beer, in his original as well as subsequent publications, refers to the treatment of these tumors by a "high-frequency current." The term "fulguration" has been used by many but is very frequently objected to, it being claimed that it is not a true process of fulguration. Thomas prefers the term "high-frequency desiccation," while high-frequency cauterization, electric cauterization, the bipolar spark, electric coagulation, thermopenetration and diathermy have been used by various authors. It can readily be seen that there is no uniform term describing this form of treatment in use at present.

Selection of Cases.—Of prime importance with this, as with any form of treatment, is the fact that its success depends on a careful, judicious selection of cases. This was early recognized by Beer, for in his second publication he stated that all cases should be studied microscopically and all malignant cases excluded from this therapy. In order to determine definitely the nature of the tumor, whether benign or malignant, it has been suggested that a small piece of the tumor be removed for histologic study by means of an operating cystoscope. *This procedure has been condemned by many as being not only unsatisfactory, but positively dangerous.*

It may not always be possible to obtain tissue for histologic study. Beer has suggested that "a careful and experienced worker will be able to decide from the lack of clinical result that he is dealing with a growth that does not respond; in other words, he is dealing with a malignant growth." This does not, however, hold true in each and every case, for it is quite possible that in a given case in which treatment was administered elsewhere and no result obtained, that a tumor may still be benign, or again because a tumor does not yield to treatment it must necessarily be malignant.

The best results have been obtained in papillomas of primary growth or in papillomas that have been previously operated on; that is, in cases with recurrences. These recurrences may be seen at the site from which the tumor was removed by a surgical operation; although not infrequently one sees these so-called recurrences in parts of the bladder remote from the primary growth, while the site from which the primary tumor was removed is free from neoplasm.

If one is dealing with such a case, it is questionable whether it can be called a "true recurrence," for, cystoscopically, there is no tumor at the site from which the former growth was removed. Under such conditions one should look on these as true new tumors.

In former writings, these so-called recurrences were explained as being the results of inoculation due to faulty technic at the time of operation. Statements were made attributing these recurrences to careless wiping with sponges, as well as to careless manipulation of retractors. In a case recently reported it was stated that the recurrences were found in that part of the bladder wall which had been covered by the retractor. These technical errors can be eliminated in cases in which the high-frequency current has been used.

In cases of recurrences, in which a suprapubic operation had been performed, and the recurrences are found in parts of the bladder other than that from which the tumor was removed, one must consider the possibility of having overlooked a small tumor at the time of operation.

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* Read at the joint meeting of the Chicago Medical and Chicago Urological societies, Jan. 13, 1915.

TECHNIC

The patient is prepared for cystoscopic examination. The bladder is distended with boric solution. A ureteral catheterizing cystoscope is passed into the bladder, and a fulguration catheter is introduced through the catheter channel into the bladder. The tumor, or one of the tumors, if there are multiple growths, is located and the catheter passed forward to the tumor. The method of applying the current is variable. Some plunge the wire directly into the substance of the tumor, while others prefer to leave a small gap between the end of the wire and the growth. I have worked both ways, and it does not seem to make much difference in the results.

Two types of current have been employed, the unipolar or Oudin, and the bipolar or D'Arsonval. If the bipolar current is used, one pole is connected with the fulguration catheter and the other terminates in an electrode, the placing of which depends on the location of the tumor. If the tumor occupies the base of the bladder, a large flat plate may be placed under the buttocks, or an electrode may be placed in the rectum, whereas, if it occupies the upper wall of the bladder, a large flat plate is placed over the suprapubic area. I have always used the portable apparatus made by Wappler, and it has given very satisfactory results.

One of the former difficulties in carrying out this procedure was the inconvenience caused by the melting away of the insulating cable, so that after a certain amount of treatment it became necessary to withdraw the cable and cut off the end. This inconvenience has now been overcome by the use of the fulguration catheter, the end of which is made of bone. The cable being placed on the inside of this catheter also makes it easier to manipulate, and insures better insulation.

Portion of the Tumor to Which One Should Begin Making Application.—In small growths there is but one course to pursue, and that is to begin at the periphery. These small papillomas, if they are thoroughly sparked, require but one or two treatments for their complete removal. In very large growths, it might be desirable to adopt a different mode of procedure, namely, to apply the current directly to the pedicle of the tumor in the endeavor to free the tumor from its pedicle. If this procedure is successful, one accomplishes at one sitting the same result that would require numerous treatments if one began sparking at the periphery. Even in large tumors, however, it is often impossible to locate the pedicle definitely, and, consequently, this procedure cannot be carried out, so that starting at the periphery is the method most frequently used. With the object in view of accomplishing the same end-result, namely, the removal of the growth in one sitting, some surgeons prefer to use a snare when dealing with large pedunculated tumors. Then, after the major part of the tumor has been removed, the high-frequency current is applied to the base or the remainder of the tumor.

The current is controlled by means of the foot switch. When the current has been turned on one can see bubbles emanating from the tumor and rising to the top of the bladder. At the same time there is a blanching of the tumor, so that the entire part of the tumor which has been treated becomes white, and its cystoscopic appearance is changed.

The Element of Pain.—This depends almost entirely on the pain incident to cystoscopy, for not infrequently one sees patients who will not tolerate instrumentation of any kind. If cystoscopy is well tolerated, this element in the production of pain is eliminated. The amount of pain can be further reduced by the use of some local anesthesia in the urethra.

The Pain Incident to the Treatment.—As long as the high-frequency current is applied to the periphery of the tumor, the patient has no pain. When most of the tumor has been removed, so that only its base remains to be treated, pain is quite frequently complained of. The same applies when the end of the fulguration cable touches the mucous membrane of the bladder. When the technic is carried out perfectly, it is rare that patients complain of pain, and I have made it a rule that, when working at the periphery of a tumor, should the patient complain of pain, something is wrong with my technic or apparatus, and I aim to find and correct the cause.

Duration of the Treatment.—The duration of treatment is variable. In large growths one can spark from three to five minutes, especially as long as one is working away from the base of the tumor. It occasionally occurs, in highly nervous and sensitive patients, that one can make only one or two applications of short duration at each treatment.

Number of Treatments.—The number of treatments depends, in part, on the duration of each individual sparking. In the tolerant patient, one very often accomplishes more in one or two sittings of long duration than in half a dozen or more sparkings of short duration in the intolerant patient. As an average, three or four applications usually suffice.

Complications.—Another interesting fact obtained from a review of the literature on this subject is that nothing but good results are to be found. I have not been able to find one untoward result recorded in the literature at my command. This surely speaks well for this form of treatment, especially when one considers that the reports are the result of a new method of treatment and are recorded from men in all sections of the country. Doubtless, as time goes on, those who have had untoward results and undesirable complications will publish them, thereby preventing similar experiences in the hands of others. Unfortunately, we are prone to report our successful cases, and not to mention our bad results. If a new therapeutic measure has limitations, or if it is not free from danger in its application, it should be our aim to report the bad results, complications and limitations, in order to be better able to judge of the true value of its therapeutic merit as well as to avoid undesirable complications in our future work.

Treatment as a Hemostatic.—Many of the papilloma cases have, as their only symptom, hematuria. This may be of long or short duration, continuous or intermittent. Not infrequently the high-frequency current stops the bleeding permanently, so that after the first sparking the urine clears up and remains free from macroscopic blood. Several authors have recommended its use as a hemostatic, advising a careful search for the bleeding point and the application of the spark directly to it. In the cases of carcinoma in which the high-frequency current was used through the cystoscope, I was unable to see any definite hemostatic action.

Fragments of Tumors.—Often, during the course of sparking of a very large tumor, small pieces of tissue adhere to the end of the fulguration catheter, so that it becomes necessary to withdraw the catheter and remove them before sparking can be continued. For purposes of histologic study, these small pieces, as well as the fragments obtained after emptying the bladder, were saved and sections made of them. In most of the cases the sections showed a loss of structure, and stained poorly, so that their histologic study was not very satisfactory.

Local Reaction.—As a result of the application of the high-frequency current, there occurs a certain amount of local reaction in the wall of the bladder, depending in part at least on the intensity and duration of the treatment. This local reaction has been described by several authors, attention having been called to the fact that it may resemble and be mistaken for carcinoma. That such mistakes are possible and have occurred is known. In a case recently reported just this error was made. The patient had been treated with a high-frequency current. At a subsequent cystoscopic examination, after the fulguration, this reaction was looked on as carcinoma, and the patient immediately was operated on and resection of the bladder was carried out. Sections failed to reveal anything resembling carcinoma.

CLASSIFICATION

For convenience the cases treated have been placed in four groups: papillomas, papillary carcinoma, carcinoma and polyps.

1. Papillomas.—In all, ten cases of papillomas have been treated. Regarding the incidence of sex there were eight males and two females. The oldest patient was 79, and the youngest 29. In two of the cases, the tumors were multiple. In one of the cases (a woman) there were found three tumors. The other case of multiple tumors occurred in a man, and there were six tumors present. The number of treatments given was as follows: In four cases, one sparking; in two cases, two sparkings; in two cases, three sparkings; in one case, four sparkings; in one case, five sparkings.

Two of the cases treated were of so-called recurrences, one after a suprapubic removal of the tumor, which was situated near the left ureteral orifice and which had been removed surgically in the days prior to fulguration. The other was a secondary growth after the first was removed by fulguration. In nine of the cases the treatment was carried out through the cystoscope, and in one through the suprapubic opening. Of these ten cases, eight are permanently cured, having been cystoscoped at various intervals since their discharge. One case is still under treatment and one has passed from observation.

2. Papillary Carcinoma.—There was one case of papillary carcinoma. Briefly the history is as follows: The patient had painless hematuria for three years. A diagnosis of papilloma was made, and the tumor was removed by surgical operation. It was situated near the left ureteral orifice. Three months after this operation, the patient again had profuse hematuria. I saw him six weeks after the onset of this hematuria. Cystoscopically a tumor was seen near the left ureteral orifice. With a cystoscopic rongeur a large piece was removed, and the diagnosis of papillary carcinoma was made. The sections from his previous operation were then looked up and it was found that a diagnosis of papillary carcinoma had been made at the time of his previous surgical operation. The patient refused any further surgical treatment, as the only possible operation considered was wide excision and transplantation of the ureter. The use of the high-frequency current was suggested to which the patient readily gave his consent. He received in all four sparkings. He has not had any further attacks of hematuria, and at the last cystoscopic examination, made Feb. 16, 1915, he was free from recurrence.

3. Carcinoma.—There were six cases of carcinoma, four in males and two in females. The age varied from 52 to 70 years. Three of the patients were treated through the cystoscope without any result. The treatment was very painful and it had no effect on the growths. It has recently been recommended that these carcinomas be removed, preferably by the cautery, after suprapubic cystotomy, and that then the base be sparked through the suprapubic opening. Three cases were subjected to suprapubic resection and bipolar sparking. One patient, at the time of her discharge from the hospital, showed a perfectly normal bladder on cystoscopic examination. Within six months she had a local recurrence. Another patient died six months later with an extensive carcinomatosis of the bladder. The third has passed from observation.

4. Polyps.—There was one case of polyp. The patient was a man. The polyp was large and hung from the internal urethral orifice, so that the patient had pain at the end of urination, and occasionally hematuria. One application of the high-frequency spark caused a complete disappearance of the polyp.

THE EFFECT OF VARIOUS PROCEDURES ON THE PASSAGE OF LIQUIDS FROM THE STOMACH *

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AND
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A large amount of experimental and clinical work has been done in the study of gastric function since the time of Beaumont, especially by Pawlow, Boas, Ewald, Cannon and others. Most of this work has dealt with the study of gastric secretion and the chemistry of digestion. Such work and thought as has been devoted to the emptying of the stomach has been largely clinical, although there has been some experimental and theoretical considerations of this subject in recent years.

When considering this subject it is surprising to find how many accepted facts concerning the emptying power of the stomach are conclusions, correct or otherwise, which have existed for so long that they are taken for granted as true, without experimental foundation.

It has been presumed by many that hyperchlorhydria is responsible for an increased action of the gastric musculature, particularly near the pyloric ring, thereby producing an emptying of the stomach more rapid than normal. On the contrary, Cannon[1] and others have shown, in a series of experiments in which this condition was artificially produced, that there was some delay in the emptying of the stomach.

A vague impression has always prevailed that posture or exercise have some influence on the emptying of the stomach. For instance, we instruct people not to lie down after a meal or to lie down at a given time only, before and after eating. Some experimental work has been done with this in mind, but there is still room for much work in determining the exact influence of these factors in emptying the stomach. E. Ageron[2] states that, "the reclining position in bed, especially with the pelvis raised, materially facilitates the emptying of the atonic stomach."

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* From the Department of Medicine, St. Louis University.

[1] Cannon, W. B.: The Acid Control of the Pylorus, Am. Jour. Physiol., 1907, v, 283.

A study of the temperature of the stomach contents has also thrown some light on our knowledge of the emptying of the stomach. Boas[3] found that, if 400 c.c. of water is ingested while fasting, only 50 or 100 c.c. is left after thirty minutes in normal stomachs. If more is found he thinks that a state of motor insufficiency may be assumed. Johannes Mueller[4] found that liquids left the stomach more rapidly when at body temperature than when cooled to 5 C., or heated to 50 C.

By these experiments we will attempt to show (1) the effect of exercise, massage and rest; (2) the influence of posture; (3) the influence of temperature; (4) the influence of the reaction on the emptying of the stomach.

Conclusions, to be most accurate, must be drawn from a study of individuals as nearly normal as possible. Perhaps no group of subjects for this set of experiments could be more satisfactory than able-bodied young medical students. Volunteers were sought and they lent themselves most readily to the furtherance of our experiments. Only young men free from organic lesions, from gastric disturbances, from constipation, etc., were employed.

The subject presented himself at 8 a. m., having taken no food or drink since early on the previous evening. His stomach was, therefore, presumably empty.

By our method, the young man drank 500 c.c. of water at a given temperature. After a given time, that which remained in the stomach was removed by means of a moderately soft stomach tube. We were careful to be as certain as possible that all the remaining content was removed.

These men were trained to take the tube before the experiments were commenced. They took the tube easily for the most part. Of course it is possible that in some cases not all of the fluid was obtained by the tube. It has been shown by Harmer and Dodd[5] that there is a great error in many cases in removing fluid from the stomach by the tube. Our results were so consistent that this possibility may be ignored, except in a few cases.

TABLE 1.—EXPERIMENT 1 (INFLUENCE OF MODERATE EXERCISE AND REST)

Position	Quantity c.c.	Temp. C.	No. Men	Time Minutes	Fluid Rem. c.c.
Standing (quiet)	500	20	18	15	223
Standing 3 exercises	500	20	18	15	199

It is important to know whether or not exercise has any influence on the emptying of the stomach, and if so in what manner. Eighteen men were used in the experiment. On the first morning the subject was given 500 c.c. of water at 20 C., and was instructed to stand or sit quietly. At the end of fifteen minutes his stomach was emptied. In a few preliminary experiments the water was not removed for thirty minutes, and one hour, but it was found that the results could not be satisfactory for study, many stomachs being nearly empty at the end of that time.

Next day the student was given 500 c.c. of water at 20 C. and at intervals was required to take three sets of exercises of three each, taking in all five minutes to complete them. In the first he bent over forcibly, with knees stiffened and attempted to touch the floor and straighten up. This he did three times. After a short period of rest he bent backward, his arms extending upward, and came forward forcibly; this was repeated three times. In the third exercise he bent his body forward and downward and imitated, with some muscular effort, the lifting of a heavy iron bar with his hands, and the raising of it above his head as high as possible. This was also done three times. At the end of fifteen minutes, including the time required for the exercises, his stomach was emptied. The first experiment was repeated on the third day, and on the fourth day the second was repeated.

The average results tabulated in Table 1 show that exercises of this nature seem to empty the stomach somewhat more rapidly than when the person is quiet.

These experiments were not constant, in that about one-fourth of the cases retained about the same quantity, or more, after the exercise, than when at rest. The average results, therefore, do not show a striking difference. The residue after the exercises varied from 75 c.c. up to the same or a larger quantity than that retained when the patient was quiet.

TABLE 2.—EXPERIMENT 2 (REST, MASSAGE AND STRENUOUS EXERCISE)

Position	Quantity c.c.	Temp. C.	No. Men	Time Minutes	Fluid Rem. c.c.
Standing	500	20	12	15	242
Massage	500	20	12	15	145
Continued, strenuous exercises	500	20	12	15	169

In this set of experiments the massage was practically continuous during the fifteen minutes the water was retained. The massage was a pressure and kneading always toward the pylorus. Forty-eight per cent. of the water was retained when the patient was quiet; 29 per cent. when massage was given and 34 per cent. when continuous exercise was taken. These results were practically constant except in one case which showed the same quantity as when the patient was quiet.

The exercises in this set were the same as in Experiment 1, but were continuous and as vigorous as possible. The fact that the results are constant and the residue smaller with continuous exercise may explain the variations in the residue when light exercise for a short time was given. The continued strenuous exercises were perhaps more nearly equal in the different individuals.

It is probable that the rapid emptying of the stomach resulting from fast walking, as reported by Wulach[6] and Ogarkow, is due, in some way, to activity of the abdominal musculature and in this way corresponds to the results obtained by exercising. It appears that the same result is also accomplished by passive motion or massage.

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[2] Ageron, E.: Zur Pathogenese der Obstipation, Arch. f. Verdauungskr., October, 1911, p. 584.

[3] Boas, J.: Diagnostic und Therapie der Magenkrankheiten, Leipzig, 1911, p. 432.

[4] Mueller, Johannes: Ztschr. f. diätet. u. physik. Therap., 1905, viii, 587.

[5] Harmer, Torr Wagner, and Dodd, Walter J.: Sources of Error in the Use of the Stomach Tube for Diagnosis, Arch. Int. Med., November, 1913, p. 488.

[6] Wulach: Die Verweildauer der verschiedenen Nahrungssubstanzen, im Magen, München. med. Wchnschr., Oct. 31, 1911, p. 2319.

Experiments have shown that substances other than liquids are affected as are liquids by exercise, but are emptied more slowly.

Various conclusions may be drawn from this observation. It will be seen that exercise is contra-indicated in cases of gastric and intestinal indigestion in which there is peristaltic unrest. On the other hand, exercise should prove beneficial in persons having atonic stomachs and weakened gastric motility, as well as in the large number of cases of gastric dilatation and gastroptosis so frequently associated with general visceroptosis.

TABLE 3.—EXPERIMENT 3 (INFLUENCE OF POSTURE)

Position	Quantity c.c.	Temp. C.	No. Men	Time Minutes	Fluid Rem. c.c.
1. Standing	500	20	11	15	286
2. Lying (right side)	500	20	10	15	201
3. Lying (left side)	500	20	11	15	325
4. Lying (back)	500	20	11	15	233

Eleven men were employed. Five hundred c.c. of water were taken at 20 C. The amount retained after standing fifteen minutes averaged 286 c.c. When lying on the right side 201 c.c. of water were retained, which was less than in any of the other three postures. It would seem, therefore, that gravity is the factor here which helps the stomach to empty itself more rapidly. It is also possible that the increased pressure-weight on the pyloric ring increases the rapidity of the opening and closing of the orifice. The same theory holds good when the subject lies on the left side, for 324 c.c. were retained, which is considerably more than in any other posture; for most of the water lies in the fundus and the weight is taken from the pyloric ring. There is no doubt that this position retarded the passage into the duodenum. Lying on the back caused 233 c.c. to be retained, which is less than in the standing posture but is about the same as in the standing postures in the other experiments. The emptying was slightly less rapid than when the subject was lying on the right side, but was much more pronounced than in the left-side posture.

Ogarkow after investigations carried out on himself, found that gastric motility was strongest (emptying more completely in a given time) when lying on the right side or walking rapidly. Standing, sitting, lying on the left side and slow walking were least favorable; while lying on the stomach or back was intermediate in effect.

The striking result of this set of experiments was the retardation due to lying on the left side. This has some clinical significance. Lying on the left side should be avoided after eating or drinking by patients with tendencies toward atonic dilatation, fermentative conditions and ptosis. Lying on the right side might be favorable in these conditions. The left position should be of value in excessive gastric motility. Lying on the back is not necessarily a detriment to the emptying of the stomach.

TABLE 4.—EXPERIMENT 4 (INFLUENCE OF TEMPERATURE)

Position	Quantity c.c.	Temp. C.	No. Men	Time Minutes	Fluid Rem. c.c.
1. Standing	500	45	7	15	232
2. Standing	500	20	56	15	240
3. Standing	500	10	7	15	284

As previously shown, Mueller states that he has shown in experiments on animals, and Mallory[7] in reviewing the physiology of gastric motility also states that hot and cold fluids remain in the stomach longer than those at 38 C.

Seven men were given 500 c.c. of water at 45 C., which was warm but not hot. The amount retained averaged 232 c.c. at the end of fifteen minutes. The following morning, at a temperature of 10 C., 284 c.c. were retained, showing that warm water is emptied somewhat more rapidly than cold water. It will be seen that lukewarm water (38 C.) will not empty so rapidly as water at 45 C. but the difference is not great.

It is probable that cold liquids quickly rise in temperature when ingested and that hot substances fall to the mean body temperature almost as quickly. It is, therefore, probable that this adjustment to the body temperature accounts for the absence of any striking effects in their influence on gastric emptying.

It has been shown that the motor function and the emptying time of the stomach is constantly normal only when the percentage of hydrochloric acid is normal. When it is increased and a state of hyperacidity is brought about, there is increased activity of the gastric musculature, the pyloric ring opens and part of the contents is expelled into the duodenum. When the acid contents come in contact with the duodenal mucosa, however, a reflex spasm of the pylorus and closure of the pyloric ring with retention of the contents occurs, ultimately bringing about a retardation of the emptying time (Cannon). Von Tabora[8] studied gastric peristalsis and motility in healthy individuals and in those having hypochlorhydria and hyperchlorhydria. He used bismuth alone and combined it with hydrochloric acid and with oils. When hydrochloric acid was used the peristalsis was deeper and more energetic, but the time of emptying was about 50 per cent. longer.

TABLE 5.—EXPERIMENT 5 (INFLUENCE OF REACTION)

Position	Quantity c.c.	Temp. C.	No. Men	Time Minutes	Fluid Rem. c.c.
1. Standing	500	20	12	15	220
2. Standing	500*	20	12	15	263
3. Standing	500†	20	12	15	229

* The liquid used in this experiment consisted of a 1 per cent. solution of hydrochloric acid.

† The liquid used in this experiment contained 5 grains of sodium bicarbonate.

Twelve men were employed in our experiment. First they were given as a control, 500 c.c. of water at 20 C. At the end of fifteen minutes 220 c.c. was the average amount retained. Following this, on the next day, they were given 500 c.c. of hydrochloric acid 1 per cent. solution. After fifteen minutes, 263 c.c. remained. The next day 5 gm. of sodium bicarbonate was added to the water and 229 c.c. remained. These results are entirely in accord with the conclusions of those who do work of this kind. Though the differences are not striking it is evident that the stomach empties itself quicker in the presence of a normal or nearly normal acidity. The introduction of an alkalinized substance, which in our experiments produced a slightly alkaline or neutral reaction of the remaining contents, caused an emptying slightly more rapid than when an acid substance was introduced.

In this set of experiments the results were consistent, especially so when the acid was used. The amount retained with the acid was always from 9 to

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[7] Mallory, W. J.: The Physiology of Gastric Motility, Med. Rec., New York, Sept. 12, 1914, p. 448.

[8] Von Tabora: Ueber die Motorische Magenreflexe, Verhandl. d. deutsch. Kong. f. inn. Med., Wiesbaden, 1911, xxviii, 378.

90 per cent. greater than the amount retained when water alone was used, the average per cent. greater being 24. In two cases the amount retained with the acid was decreased. The fluid obtained when water was used showed an acidity of from 2 to 20, generally from 2 to 5 was found. The explanation of the decreased quantity in the two cases above mentioned may be due to an existing hyperacidity with hypermotility of the musculature and hyperesthesia of the gastric mucosa, as the acidity of contents with water was respectively 10:20. This seems to be borne out by the fact that the total quantity of water retained was only 155 c.c. in the case in which the acidity of the water returned was high.

The facts brought out by these experiments are in keeping with certain clinical facts. In achylia gastrica there is generally a rapid emptying of the stomach. The same thing holds in many cases of chronic gastritis with a low acidity.

In hyperacidity it is common to find a large quantity of gastric content after a Boas-Ewald test breakfast. This is ascribed to hypersecretion. It may well be a delay in emptying due to the high acidity. Some cases of hyperacidity, however, have a rapidly emptying stomach. This may be due to hyperesthesia of the mucosa with a hypermotility brought about by the long action of the high acids in these cases.

SUMMARY

From our experiments in healthy young men we find:

1. Water is emptied from the stomach somewhat more rapidly during exercise than when the subject remains quiet.
2. Posture seems to have a direct influence on the emptying power of the stomach. Lying on the right side causes a more rapid evacuation than in any other position, and lying on the left side has the opposite effect. Lying on the back causes a somewhat more rapid emptying than in the upright position.
3. At 45 C. water leaves the stomach somewhat more rapidly than at 10 C.
4. Normal acidity causes a more rapid emptying than hyperacidity produced artificially by adding hydrochloric acid to the stomach contents. Artificial alkalinity produced by adding sodium bicarbonate to the stomach contents causes the stomach to empty itself slightly less rapidly than under normal conditions, but more so than during hyperacidity.
5. All of these factors may have considerable significance in their bearing on clinical experience.

Alcohol from Nipa Sap.—In the Philippines a good grade of cheap sugar and a fine quality of alcohol are made from the sap of the nipa plant. The government in the development of the commercial possibilities of the islands is endeavoring to promote this industry, and the bureau of forestry has made a compilation of the resources of the island in this respect. It is said there are over 100,000 acres of nipa swamp available in the archipelago, about 90 per cent. of which area has not been touched. Nipa is said to furnish the cheapest raw material in the world for the production of alcohol which may be denatured and used for fuel in motor vehicles at less expense than for gasoline and is fully as efficient. It is stated that a motor built for this fuel would be 20 or 30 per cent. better than a gasoline motor. The total production of alcohol in the islands is about 2,500,000 gallons per season, and only 2 per cent. is denatured for commercial use.

A STUDY OF STREPTOCOCCI FROM PYORRHEA ALVEOLARIS AND FROM APICAL ABSCESSES *

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MINNEAPOLIS

In recent years much attention has been paid by clinicians to suppurative lesions about the teeth as a source of systemic infections. Considerable statistical material has been accumulated, especially in England, showing the frequent clinical coincidence of pyorrhea alveolaris and apical abscesses with various constitutional disturbances, particularly acute and chronic rheumatism. The literature on this subject has been reviewed by Nodine.[1]

A recent communication by Gilmer and Moody[2] records the results of bacteriologic examinations of some forty dental abscesses. They found that, in a varied flora, the streptococci were the organisms most constantly present. So far as we know, these workers, together with Rosenow, whose paper accompanies theirs, are the only ones who have attacked this problem from a bacteriologic standpoint.

Our own work was carried on in the clinics and laboratories of the University of Minnesota, with funds provided by the Research Commission and Scientific Foundation of the National Dental Association. We have taken cultures from a large series of patients presenting either pyorrhea or dental abscesses, many of whom were suffering from systemic disease; we have isolated and identified the organisms present, and have made animal inoculations to determine their pathogenicity.

The clinical portion of our work has consisted in determining the therapeutic value of eliminating the mouth infections in a selected series of cases of systemic disease, with the use of autogenous vaccines prepared from the mouth bacteria in some cases.

The cases we have had under observation have in the main been patients who presented clinical evidences of rheumatism, either acute or chronic. We have had seventeen cases of arthritis deformans. The results obtained have been very irregular, but we may say that over half of these patients showed improvement, which in a few cases was pronounced; other cases, however, became even worse under treatment. We have taken cultures from five cases of acute rheumatic fever.

Seven cases of endocarditis have been studied. In two of these patients the heart condition has been vastly improved. We have had two patients who developed a fatal streptococcemia from mouth infections. One of these, who came to necropsy, had a most marked vegetative endocarditis of the mitral valve; no necropsy was obtained in the other case, but the organisms were recovered from the blood.

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* The work here reported has been conducted in the laboratories and hospital of the School of Medicine of the University of Minnesota under the auspices of, and with funds provided by, the Research Commission and Scientific Foundation of the National Dental Association.

[1] Nodine: Dental Cosmos, lvi, 969.

[2] Gilmer and Moody: A Study of the Bacteriology of Alveolar Abscess and Infected Root Canals, The Journal A. M. A., Dec. 5, 1914, p. 2023.

Aside from the rheumatic patients, we have studied three cases of pernicious anemia, five cases of gastric ulcer, and nine cases of acute iritis. The pernicious anemia cases showed the fluctuation usual in this disease; one man showed a marked progressive increase in the blood count after removing some of the abscessed teeth, but left the hospital before his dental work was completed, and has returned with a low blood count. The gastric ulcer patients, two of whom were of twelve to fourteen years' standing, with frequent recurrences in that time, have not, in a single instance, had a recurrence since eliminating the mouth infections, although two years to five months have elapsed since their dental work was completed. The iritis patients have all shown a marked improvement, beginning in some cases a few hours after removing the abscessed teeth.

We are not in a position to state definitely the value of vaccines in these cases. We believe that the removal of the source of infection in the mouth is of far greater importance than the use of vaccines, but we feel that the latter have been of value as a supplementary treatment in some cases.

The technic employed in taking cultures was developed by Dr. Hartzell with the idea of excluding all the normal mouth bacteria and obtaining only those organisms present in the lesions themselves. To this end the tooth to be cultured was packed off and given a thorough dry cleansing with gauze, after which the area was painted with iodin. In cases in which a local anesthetic was used, the gums about the neck of the tooth were next seared by the actual cautery. After extraction, the root tip, which frequently had the abscess sac adherent to it, was nipped off by a pair of sterile rongeur forceps and dropped into a tube of broth, or of serum broth. Where rongeur forceps were not available, the tooth was grasped well below the neck by a pair of sterile forceps, and the upper end baked in the Bunsen flame; the entire tooth was then dropped into broth. In pyorrhea cases as much pus as possible was expressed, the area cleansed in the same manner, and cultures were made from the material obtained by inserting a sterile curet into the pocket. In the bacteriologic technic employed, our attention was directed solely to the streptococci. There were two reasons for this: First, streptococci were constantly present, and (especially in apical abscesses) were frequently the sole cultivable organism. Second, our immediate problem being the relationship of dental infections to rheumatism, it was thought that a study of the streptococci would be most likely to yield tangible results. Other organisms, however, were frequently noted, such as the *Staphylococcus albus, Bacillus coli, Bacillus proteus,* various spore-bearing aerobes of the *B. subtilis* type, and *Bacillus pyocyaneus.* On several occasions we have obtained a small Gram-positive bacillus which we have been unable to identify, and we have noted a diphtheroid bacillus once. One recent case yielded a pure culture of *Bacillus fecalis alkaligenes.* Only once was the pneumococcus obtained.

Cultures were incubated until a growth appeared, usually in twenty-four to forty-eight hours, after which they were plated either on blood agar or on plain agar, in which latter case the action on blood was later studied in agar slants. In the early part of our work we made a small series of anaerobic cultures and found that the streptococci grew somewhat better this way, but the ultimate results were essentially the same as in the aerobic cultures, and all the work here reported has been carried on aerobically.

Cultures have been taken from 162 cases, and in 150 of these streptococci were obtained. We had hoped to have a considerable number of control cases in which healthy teeth were extracted, but found it almost impossible to obtain material. In seven cases, however, where healthy teeth were extracted, using the same technic, we obtained sterile cultures. On several occasions we have had no growth from abscessed teeth.

The cultural features of these streptococci were studied in eight routine media, namely, blood agar, litmus milk, and broth containing lactose, saccharose, mannite, raffinose, salicin, and inulin. In a considerable number of cases it has been impossible to make a complete study due to the fact that the organisms died out after one or two transfers on artificial media. In almost every case, however, we have tried out the action on blood agar. We used defibrinated sheep's blood or whole rabbit's blood in the proportion of one part to ten parts of agar. In every case but two the colonies on blood agar were surrounded by a green halo. In the two exceptions, the colonies appeared as small gray dots without any change in the surrounding blood agar. In no case were hemolytic streptococci obtained; in this important feature our series differs from that of Gilmer and Moody. In litmus milk almost every strain produced acid, and the majority also clotted the milk.

Since the work of Gordon, and of Andrewes and Horder, it has been customary for investigators studying the streptococcus group to use a series of carbohydrate fermentation tests as a means of classification. In order that our own material might be of some value when considered in relation to the large amount of data which has hitherto been published concerning the fermentation reactions of streptococci from other sources, we have studied the action of a number of our strains on the carbohydrates mentioned. In the early part of our work we used plain broth containing 1 per cent. of the sugar to be tested, with litmus as an indicator. The results are shown in Table 1. We soon abandoned this medium, as the organisms grew in it very slowly or not at all. We next added beef serum to the broth, and sterilized at 60 to 70 C. on several successive days, which semi-gelatinized the serum. Acidity was determined by titrating against N/20 NaOH. The results obtained with a large series of cases were so irregular and so much at variance with our other experiments that we felt there was some undetected source of error. We then adopted the medium recently described by Holman;[3] this is carbohydrate broth containing beef serum sterilized by passing through a porcelain

TABLE 1.—FERMENTATION REACTIONS IN CARBOHYDRATE BROTH WITH LITMUS

No.	Blood Agar	Litmus Milk	Lactose	Saccharose	Mannite	Raffinose	Salicin	Inulin
50	Green	No change	Acid	Acid	0	Acid	0	0
51	Green	Acid, coag.	Acid	Acid	0	Acid	0	0
52a	Green	Acid	Acid	Acid	0	Acid	0	0
52b	Green	Acid	Acid	Acid	0	0	Acid	0
55	Green	Acid, coag.	Acid	Acid	0	Acid	0	0
59a	Green	Acid	Acid	Acid	0	0	0	0
59b	Gray	Acid, coag.	Acid	0	Acid	0	Acid	0

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[3] Holman: Jour. Infect. Dis., xv, 209.

filter, acidity being demonstrated by Andráde's indicator. With this medium we obtained uniform and clear cut results as shown in Table 2.

It will be seen that the majority of our strains ferment salicin, some ferment raffinose, and still others attack both of these sugars. Almost all strains produce acid from lactose and saccharose. A few strains ferment neither salicin nor raffinose. Culture 135 is interesting in that this patient developed a fatal septicemia from a dental infection; 135 M represents the streptococci from the mouth, and 135 B from a blood culture.

From this portion of our work we can conclude that there are constantly present in peridental infections streptococci, which from their action on blood agar, belong to the group designated by Schotmüller as *Streptococcus viridans*. From the fermentation reactions, these belong to the classes *S. mitis*, *S. salivarius*, and *S. fecalis* of Andrewes and Horder.

To determine the pathogenicity of these streptococci, and in the hope of producing lesions more or less characteristic of rheumatism, a number of animal inoculations were made. For this work we used exclusively rabbits weighing from 800 to 1,000 gm. In almost every instance the injections were intravenous.

The most characteristic feature in these rabbits was the development of a progressive emaciation and weakness in spite of the fact that the animals fed well. We were able in some instances, however, to produce more or less characteristic lesions of the heart, kidneys, aorta and joints.

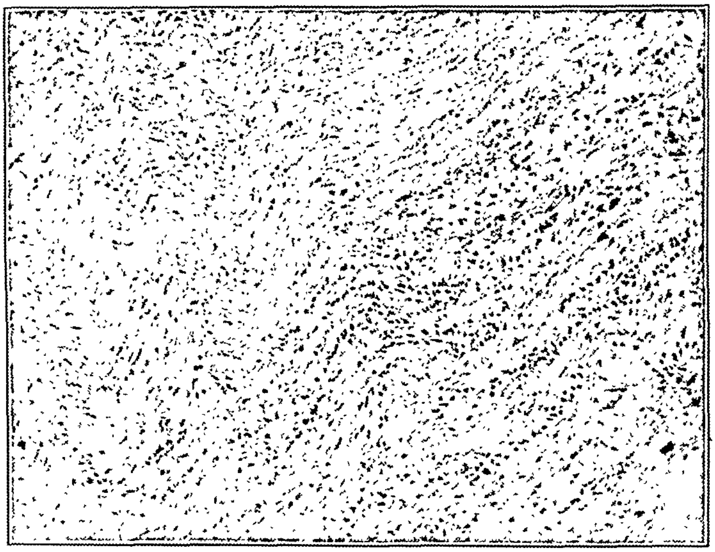
Fig. 1.—Section of heart muscle of rabbit showing diffuse infiltration of lymphocytes throughout.

The dose injected varied from 2 c.c. of a twenty-four-hour broth culture to the centrifuged bacteria from 100 c.c. of a dextrose serum broth culture. The very large doses, as was to be expected, produced death over night, apparently from toxemia. We finally adopted 8 c.c. of a twenty-four-hour broth culture as a standard dose; this amount does not contain enough toxic material to cause immediate symptoms, and usually kills the animal in from two to four weeks. As will be seen, the pathogenicity of these streptococci varied greatly, but for the most part they were of relatively low virulence.

We do not intend to go into details concerning all of these inoculation experiments, but will give the protocols of some of the more interesting, appending to each a summary of the history of the case from which the organisms were obtained.

PROTOCOLS OF EXPERIMENTS

CASE 52.—A man 45 years of age, suffering from a peptic ulcer of several years' duration, accompanied by secondary anemia and pyorrhea alveolaris. The teeth were cleansed and the root surfaces polished; the dead teeth were extracted and from one of the root tips a culture was taken. From this culture streptococci were isolated and a vaccine was prepared, which was given in doses increasing from 20,000,000 to 150,000,000.

In all, seven rabbits were inoculated with streptococci from this patient. Five of these survived the experiments; one died after thirty days showing no gross lesions, and another died after forty days. This rabbit showed a diffuse infiltration of lymphocytes throughout the heart muscle, as shown in Figure 1, and the condition of the aorta shown in Figure 2. Grossly there was a marked puckering and roughening of the aorta, sharply limited to the ascending portion of the arch.

CASE 54.—A man 73 years old, complaining of swelling and pain in the joints of the arms and hands, legs and feet. He presents a picture of old age and joint infection combined, with a profuse pyorrhea alveolaris.

The streptococci obtained from this patient proved nonpathogenic even in massive doses. We attempted to raise its virulence by an ingenious method suggested to us by Dr. W. P. Larson. A rabbit was anesthetized and a few drops of a twenty-four-hour broth culture were injected into the anterior chamber of the eye. In two days the eye was deeply congested and the anterior chamber was filled with pus. Under ether a sterile needle was again plunged into the anterior chamber and some pus aspirated. It yielded a pure culture of the streptococci. The next day 5 c.c. of this culture was injected into the peritoneum of a second rabbit, which died in twenty-four hours with general sepsis—fibrinopurulent peritonitis, pericarditis and septicemia.

One cubic centimeter of the culture from this rabbit was then injected into a third animal, which did not die until three weeks had elapsed. This rabbit showed in the heart muscle numerous miliary nodules of lymphocytic infiltration, with radiating streaks

TABLE 2.—FERMENTATION REACTIONS IN CARBOHYDRATE SERUM BROTH WITH ANDRADE'S INDICATOR

No.	Blood Agar	Litmus Milk	Lactose	Saccharose	Mannite	Raffinose	Salicin	Inulin
110	Green	Acid, coag.	Acid	0	0	0	Acid	0
116	Green	0	Acid	Acid	0	0	Acid	0
121	Green	0	Acid	Acid	0	0	Acid	0
122	Green	Acid	Acid	Acid	0	Acid	Acid	0
123	Green	Acid, coag.	Acid	Acid	0	Acid	Acid	0
124	Green	Acid	Acid	Acid	0	Acid	Acid	0
125	Green	Acid, coag.	Acid	Acid	0	Acid	0	0
127	Green	Acid, coag.	0	Acid	0	0	Acid	0
129	Green	Acid, coag.	Acid	Acid	0	Acid	Acid	0
130	Green	Acid, coag.	Acid	0	0	0	Acid	0
133	Green	Acid, coag.	Acid	Acid	0	Acid	0	0
134	Green	Acid, coag.	Acid	Acid	Acid	0	Acid	0
135M	Green	Acid, coag.	Acid	Acid	0	Acid	0	0
135B	Green	Acid, coag.	Acid	Acid	0	Acid	Acid	0
136	Green	Acid, coag.	Acid	Acid	0	0	0	0
137	Green	Acid, coag.	Acid	Acid	0	0	Acid	0
138	Green	Acid	Acid	Acid	0	0	Acid	0
141	Green	0	0	Acid	0	0	0	0
20	Green	Acid	0	Acid	0	0	0	0
21	Green	Acid, coag.	Acid	Acid	0	0	0	0
22	Green	Acid, coag.	Acid	0	0	0	Acid	0
23	Green	Acid	Acid	Acid	0	0	0	0
27	Green	Acid, coag.	Acid	Acid	0	Acid	0	0
28	Green	Acid, coag.	0	Acid	0	Acid	Acid	0
29	Green	Acid	Acid	Acid	0	0	0	0
32	Green	Acid	Acid	Acid	0	Acid	Acid	0
34	Green	Acid, coag.	Acid	Acid	0	0	0	0
35	Green	Acid, coag.	Acid	Acid	0	Acid	0	0
36	Green	Acid	Acid	Acid	0	Acid	Acid	0

of similar infiltration in the kidneys, principally in the medulla. The animal injected in the eye also died after several weeks; it showed no gross lesions save for lesions in the ascending arch of the aorta, such as were obtained with Case 52. Although this streptococcus was raised in virulence from nil to the maximum, it showed no changes in its cultural characters.

Case 55.—This patient is a woman 40 years old, who had an attack of acute rheumatism at the age of 10. Her heart was involved at this time and has given her trouble ever since. At 18 she had another similar attack. She has been short of breath on slight exertion, but never had severe heart symptoms until shortly before admission to the hospital, when she developed palpitation, became weak, and had fainting spells. While in the hospital she developed another attack of acute arthritis involving the arms and shoulders.

This patient had pyorrhea and numerous dead teeth, which were extracted. From the root tips of some of the teeth cultures were taken and the *Streptococcus viridans* was isolated. This strain was used to prepare a vaccine which was given in increasing doses of five million to 150 million. After several months the patient left the hospital greatly improved, but as the patient received the benefit of rest and medication during this time we have no proof that the vaccine was of value.

A rabbit injected with centrifuged bacteria from 40 c.c. of a broth culture of this strain died in sixteen days. At necropsy there was found a chronic myocarditis, the heart muscle being streaked with small fibrous patches. Microscopically, these areas consisted of scar tissue containing a number of giant cells with an occasional lymphocyte. This rabbit developed arthritis, both knee joints being swollen and containing an excess of thick, glairy fluid which contained numerous pus cells; cultures of the joint fluid remained sterile.

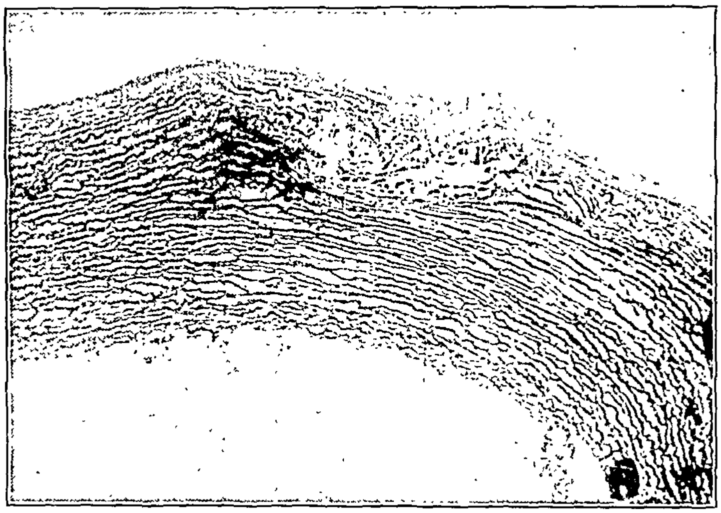

Fig. 2.—Aorta of rabbit mentioned in Figure 1.

Case 59.—This patient, a man of 41, presents a marked picture of chronic deforming arthritis. He began to have rheumatic attacks at the age of 20, which recurred every few months until almost all the joints of his hands and feet, together with his knees and elbows, are swollen and deformed, with resultant loss of motion. One elbow joint is ankylosed, as shown in Figure 3. The dental radiograph shown in Figure 4 gives some idea of the condition in which we found the teeth. Cultures from these abscesses yielded streptococci which were remarkable for their virulence. Two strains were isolated, one producing green colonies on blood agar (59a), the other forming small gray colonies (59b). In massive doses both of these strains killed the rabbits over night. With moderate doses (8 c.c.) the rabbits died in forty-eight hours. The rabbit injected with the green strain showed a hemorrhage into the cusps of the mitral valve and numerous discrete nodules of lymphocytic infiltration in the heart muscle. The kidneys showed a number of bacterial emboli in the glomeruli and elsewhere, frequently surrounded by large areas of inflammatory reaction, containing both polymorphonuclears and lymphocytes. Streptococci producing green colonies on blood agar were recovered from the heart's blood and the kidney lesions, and 5 c.c. of the blood culture was injected into a second rabbit, which died in two days, showing only miliary abscesses throughout the cortices of the kidneys. The rabbit inoculated with the gray strain showed at necropsy numerous miliary abscesses in the kidneys, particularly in the medulla, where bacterial emboli were found in the capillaries, and perivascular aggregations of polymorphonuclears and lymphocytes occurred. The streptococcus was recovered from the kidney lesions, and 5 c.c. of this culture was injected into another rabbit, which lived. Two pigeons were next used, each receiving 5 c.c. of a broth culture into the pectoral muscles of the right side. The one receiving the green strain died over night, showing at necropsy a complete necrosis of the muscle on the injected side. Not a healthy fiber was found, nor was there any evidence of inflammatory reaction. The pigeon inoculated with the gray strain survived the experiment.

Case 60.—This patient had pyorrhea alveolaris and an apical abscess associated with a severe and painful iritis which began to recede a few hours after extracting the tooth. Cultures from the root tip yielded another strain of *S. viridans* of high virulence, killing a rabbit over night. This rabbit showed a hemorrhage into one of the mitral cusps, and a number of whitish streaks in the myocardium just beneath the pericardium; microscopically these streaks were found to be lymphocytes gathered together in the cellular tissue under the pericardium. The streptococcus was recovered in pure culture and immediately injected in a smaller dose into another rabbit, which died in two days; the only lesions obtained in this rabbit were numerous miliary abscesses in the kidneys, especially the medulla.

We inoculated in all twenty-four rabbits. Of these, six lived. Five died showing no gross lesions, nor microscopic changes in heart or kidneys. One died of general sepsis and two of acute toxemia. Heart lesions occurred in five, kidney lesions in seven, aortic lesions in three, and joint lesions in two.

For purposes of comparison, thirteen rabbits were injected with streptococci obtained from ordinary saliva furnished by various people about the laboratory. Eight of these rabbits lived, two died after some time without demonstrable lesions, one showed myocarditis, another had a few very small aggregations of lymphocytes in the kidneys, while a third, which lived only twenty-four hours after inoculation, had an old adhesive peritonitis.

As controls we examined sixteen rabbits which had been inoculated with the fixed virus of rabies in the Pasteur Department of the Minnesota State Board of Health. These rabbits were older than ours, but came from the same lots and were kept under similar conditions. In none did we find any lesions comparable to those in our own rabbits, save for old scars in the kidneys of two.

Of the heart lesions obtained, the majority consisted of miliary nodules of small round cell infiltration in the myocardium. In two cases the lymphocytes were scattered diffusely through the heart muscle. Another animal, which died seventeen days after inoculation, showed a well marked chronic myocarditis in the gross. Microscopically, this heart showed large areas of scar tissue, some of which contained multinucleated giant cells. This type of lesion was not found in any of the other rabbits injected with streptococci from dental abscesses, but in one of the rabbits inoculated with streptococci from normal saliva, we found a more marked myocarditis of the same type. This rabbit died ten days after injection, and showed an organizing adhesive pericarditis, while the heart muscle had a pale, blotchy appearance throughout. Microscopically this heart showed much of the muscle tissue to be necrotic, while large areas were completely replaced by fibrous tissue containing lymphocytes and plasma cells, scattered aggregations of endothelial cells, and numerous giant cells of the type noted above.

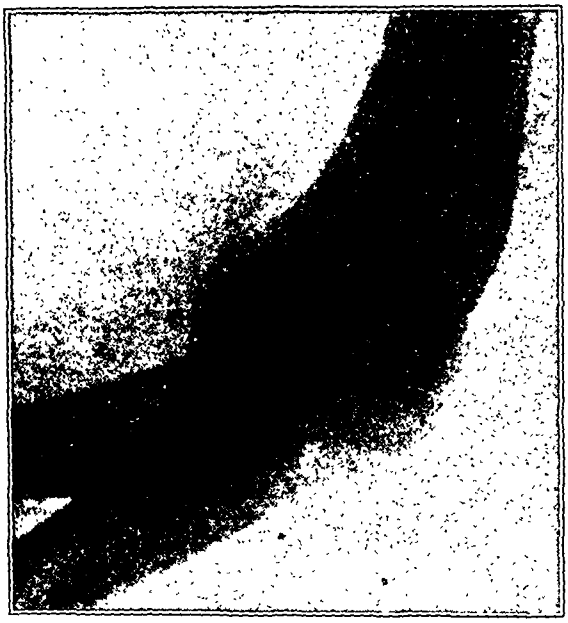

Fig. 3.—Roentgenogram of ankylosed elbow of patient, Case 59, in whom there was a general chronic deforming arthritis, with alveolar abscess as shown in Figure 4.

These heart lesions are particularly interesting when considered in relation with the work of Aschoff, Geipel, Bracht and Wächter, and others, on lesions of the myocardium in human rheumatism. These authors have all described submiliary nodules occurring in the heart muscle which they believe occur only in rheumatism. The nodules, generally called Aschoff-Geipel bodies, are described as occurring in the intermuscular tissues, especially about the vessels. They are composed of large round cells, which Aschoff believes are derived from the wandering connective tissue cells, arranged in a rosette about a vessel. These cells frequently form multinucleated giant cells, similar to those occurring in periosteal sarcomas. Scattered through the fibrous tissue, which is increased about the nodule, are lymphocytes and polymorphonuclears. Types of myocarditis closely resembling the Aschoff-Geipel type have been produced in rabbits by the experimental inoculation of streptococci by Bracht and Wächter,[4] Coombs,[5] and Leila Jackson.[6] The most recent work on this subject is by Thalhimer and Rothschild,[7] who found the bodies constantly present in cases of true rheumatism and chorea, but absent in cases of endocarditis due to *S. viridans*. They also produced focal myocardial lesions in rabbits by injecting them with *S. viridans*, but insist that these lesions are quite different from those occurring in human rheumatism, partly on the ground of differences in structure, notably the absence of a perivascular arrangement in rabbits, and partly on differences in the staining reaction of the cells with pyronin methyl green. They give one the impression that *S. viridans* infections, especially the ordinary type of subacute endocarditis, are quite distinct from true rheumatism.

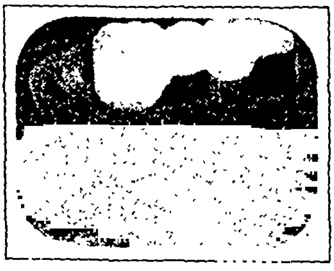

Fig. 4. — Dental roentgenogram showing apical abscesses in Case 59.

Endocardial lesions occurred but twice in our rabbits. These were animals which died very shortly after inoculation. In each case there was a well marked subendothelial hemorrhage in the mitral valves. Rosenow considers this condition to be the first stage in a developing endocarditis.

The lesions of the aorta which occurred in three of our rabbits were plainly visible to the naked eye, appearing as a series of pinhead sized elevations just above the aortic valve, giving the ascending portion of the arch a roughened appearance. Microscopically, these areas showed in the inner portion of the media an area in which there was a complete loss of continuity in the elastic tissue fibers, the ends of which appeared broken and twisted; this area contained necrotic material with a few lymphocytes. The overlying intima was thickened. Klotz[8] has shown that the aorta in rheumatism constantly presents characteristic lesions in the media. These lesions resemble somewhat the Aschoff-Geipel nodules in the heart muscle, and occur about the vasa vasorum in the outer part of the media and in the adventitia. The lesions which we have experimentally produced by mouth streptococci differ from those of human rheumatism in occurring in the inner portion of the media, and in being more extensive. It is possible that they are spontaneous, but the fact that we failed to find them in any of our controls suggests that they were produced by the organisms injected.

The kidney lesions obtained varied in degree from scattered masses of lymphocytes in the cortex to abscesses visible to the naked eye. The latter occurred in rabbits which developed an acute infection, dying two or three days after inoculation. It is noteworthy that the *Streptococcus viridans*, usually considered to be of mild virulence, can occasionally produce such acute infections, with a purulent exudate. These abscesses usually contained bacterial emboli, and usually occurred in the cortex, occasionally in the medulla. At times, emboli were found in the glomeruli without any surrounding inflammatory reaction. In several of our kidneys we found streaks of inflammatory reaction, consisting mostly of lymphocytes, radiating through the medulla, and apparently perivascular in position; such lesions have been described by LeCount and Jackson[9] as occurring in rabbits experimentally inoculated by them with streptococci.

We wish to point out the significance of the association of heart, kidney and arterial lesions in these

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[4] Bracht and Wächter: Deutsch. Arch. f. klin. Med., xcvi, 493.
[5] Coombs, quoted by Thalhimer and Rothschild (see Note 7).
[6] Jackson: Jour. Infect. Dis., xi, 243.
[7] Thalhimer and Rothschild: Jour. Exper. Med., xix, 417.
[8] Klotz: Trans. Assn. Am. Phys., 1912.
[9] LeCount and Jackson: Jour. Infect. Dis., xv, 389.

4. By the use of two claw retractors (recommended by Ochsner) applied alternately one above the other, the uterus is rapidly delivered anteriorly. The usual custom of delivering the uterus anteriorly serves the very good purpose of separating the ureters so that with reasonable care in the application of forceps there is no danger of including them in the bite of the forceps.

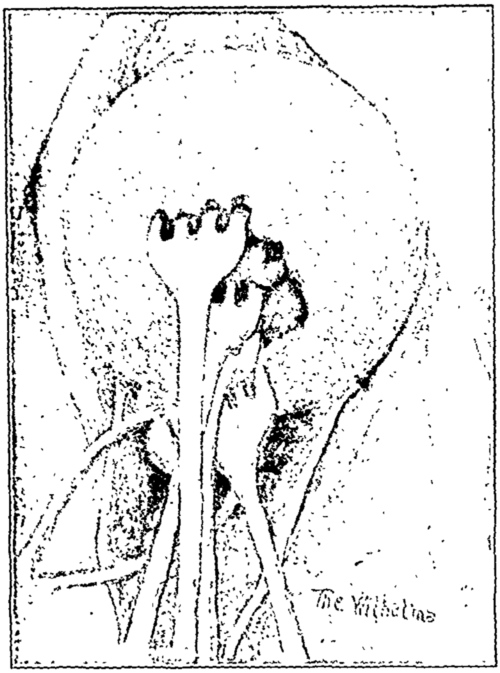


Fig. 3.—Uterus delivered.

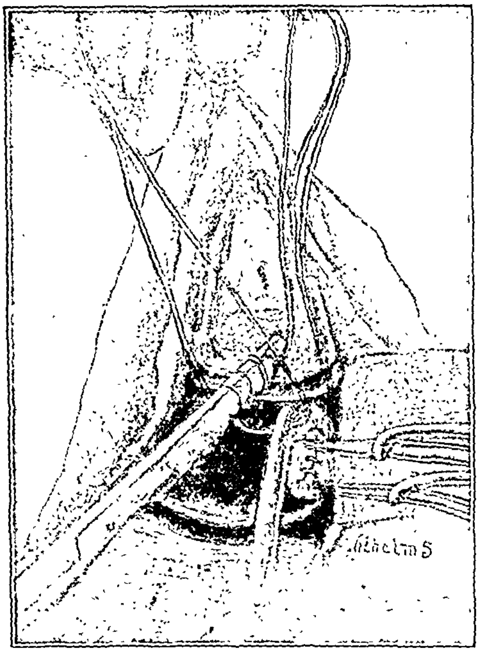


Fig. 5.—Over-and-over suture of the right broad ligament being made.

5. After the uterus is delivered, the left hand with the index finger extended is placed over the fundus of the uterus and is forced down through the peritoneum of the posterior culdesac, or else acts as a guide by the side of which the culdesac is opened with scissors through the posterior incision without danger of entering the rectum. In most cases the use of an instrument is unnecessary.

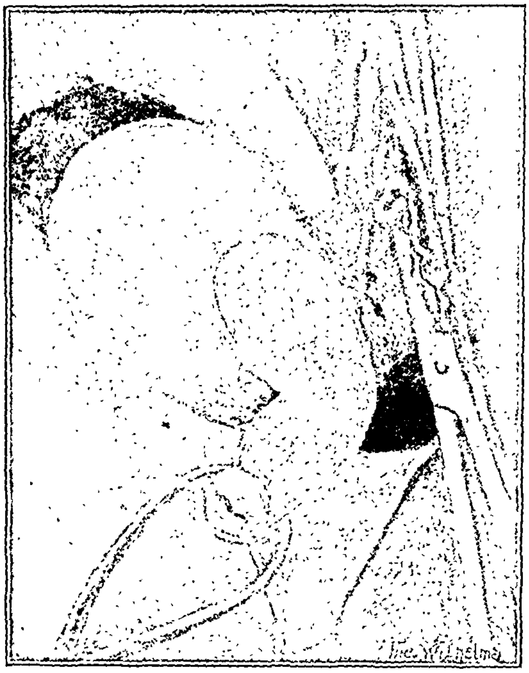


Fig. 4.—Uterus separated from broad ligament on the left side.

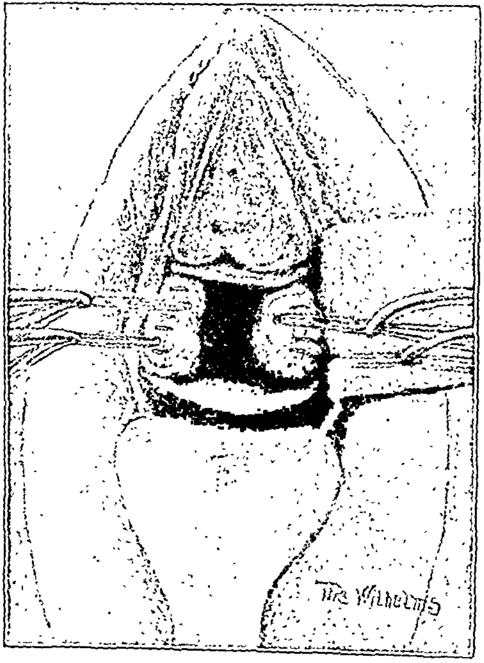


Fig. 6.—Both stumps sutured, ready for closure.

6. Clamps are now placed on the right broad ligament.

Usually two will suffice. The first clamp is placed on the broad ligament below, and the broad ligament cut between it and the uterus before the second clamp is placed (Fig. 4).

7. After the broad ligament on the right side is severed, the uterus is rotated and the clamps are easily placed on the left broad ligament and the uterus cut away. In many cases the procedure to this point has not occupied more than three or four minutes. If it is necessary to remove tubes or ovaries, they may be included with the uterus in the second clamp.

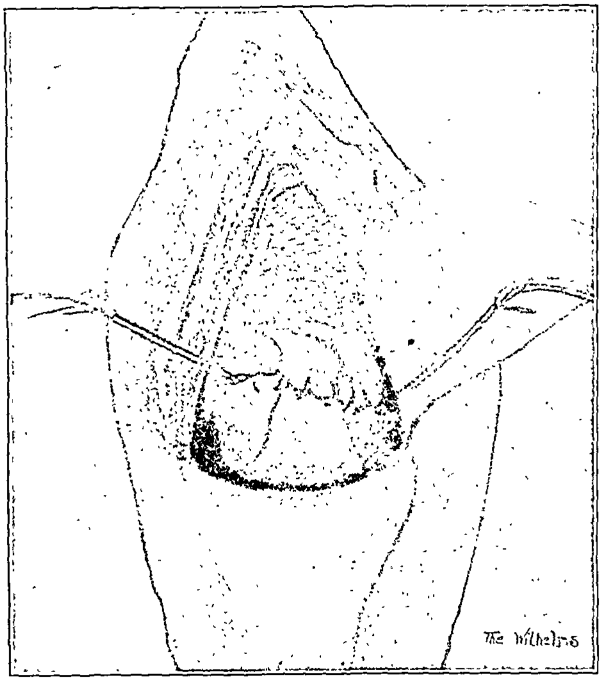


Fig. 7.—Closure completed.

8. With a double strand of No. 2 ten-day chromic catgut in a curved round needle, an over-and-over suture is made on one of the upper clamps; concluding, all the tissue enclosed in the clamp is withdrawn and the suture tied; all four ends are caught in a clamp: they should be at least 4 inches long. The lower clamp is next sutured in the same way and the ends of the catgut left long. After proceeding in the same way to sew over the opposite side, all the ends of the sutures are brought out and enclosed in one clamp for each side (Figs. 5 and 6).

9. The peritoneum is grasped in hemostats anteriorly and posteriorly and sutured in a running suture of catgut. The edges of the vaginal incision are next sutured. Openings are left at both ends of this incision through which the end of sutures on the respective broad ligaments are brought out, caught in a clamp and gauze wrapped around them. I have had only one case of hemorrhage following operation, and it was controlled by traction on these clamps. The clamps are removed at the end of twenty hours, and the ligatures are cut short (Fig. 7).

The fact that no clamps wrapped in gauze are left in the vagina as in many vaginal hysterectomies obviates the necessity of using a self-retaining catheter. The sutures sewed into the broad ligament cannot slip, and so control hemostasis quite as well as the clamps, beside saving the patient the great annoyance of having the clamps left in for so long a period, and also the danger of secondary hemorrhage at the time of removal of clamps.

IDIOPATHIC MEGACECUM

ANTHONY BASSLER, M.D.
NEW YORK

In 1,742 roentgenographic examinations of the abdomen, the condition of idiopathic megacecum has been encountered three times. Eight additional cases of markedly enlarged cecums were found, all of which presented bands, kinks, or some condition distal to the cecum, suggesting that the dilatation was a secondary or resulting process. It is possible that in two of these, the obstruction was not significant enough as a cause of the enlarged cecum; but these are not included in the description. Of the three cases of idiopathic megacecum, the first, while operation was performed and no obstruction discovered, is also not presented. It came under observation over two years ago, and the significance of it was not thought of. More than that, the records and the Roentgen examination of this case were not complete enough for full study.

Since the classical description by Hirschsprung of congenital idiopathic dilatation of the colon in 1886, many cases of the disorder have been studied. The bibliography presented by Finney in 1908 mentions 204 articles describing almost as many cases of Hirschsprung's disease. Since then more have been added. A perusal of this literature fails to disclose instances of dilated cecums alone. In several there are suggestions, but these are not concrete to the condition. It is probable, however, that instances of idiopathic megacecum have been described with Hirschsprung's disease. Judging from the descriptions of Perry in 1825, down to the present day, congenital idiopathic dilatation of the colon has been met mostly in infancy and childhood, and in the pseudomegacolons occurring in adult life (Hirschsprung's classification) the condition involves the lower colon, or the entire organ and less markedly the beginning (cecum). The condition herewith presented involved only the cecum, and not any other portion of the intestine above or below it.

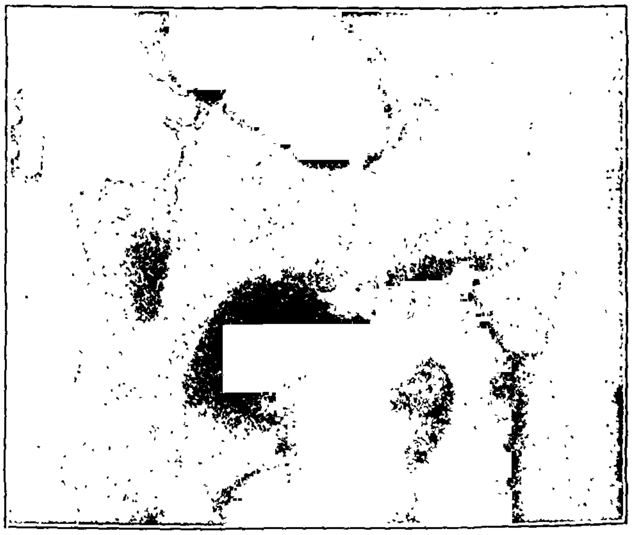


Fig. 1.—Case 1: mark on right side of patient. Note enlarged cecum involving about one-third of transverse colon, confirmed at operation. No obstruction at distal point of dilatation, but hypertrophied and thickened wall observed.

As to whether true idiopathic megacecum is congenital or acquired it is not possible for me to say. The patients were in middle age, 43 and 59 years, respectively, and unless one had examined these early in life, or instances are noted in infancy, the question must remain open. I am strongly inclined to the belief that they are acquired, the beginning taking place about the time of puberty, but not having any connection with the sexual organs because of it; and further, that it takes years for the condition to become well established, it being in this sense pseudocongenital. As to the cause, it is at present my opinion that a bacterial process represented in an intestinal toxemia of a chronic type figures mainly. Exactly what this infection is or the food-bacterial toxins are, or may be, I am unable to say. In coming to this conclusion on the basis of the two cases presented we can rule out abnormally long mesentery with secondary torsion of the cecum; atresia or obstruction of the colon from any cause distal to the cecum, both within and without the intestine; chronic colitis, which exists but probably is secondary; neuromuscular defect in the one section, because the symptoms were easily handled medically and a moderate reduction in the dilatation accomplished; changes in the sympathetics of the cecum for the same reasons, and incomplete invagination or valve formation.

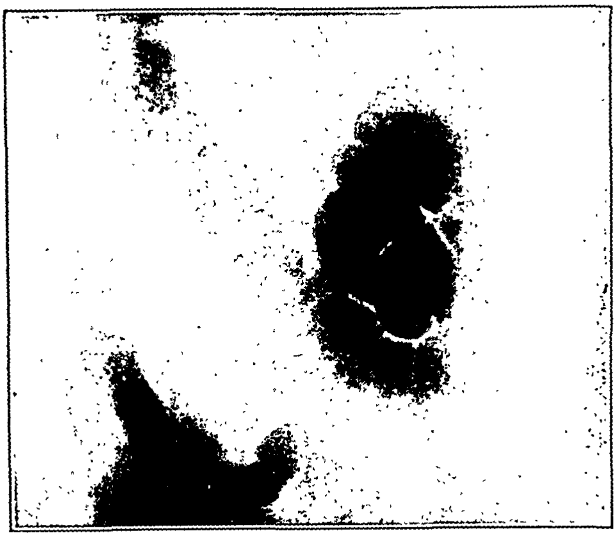


Fig. 2.—Case 2: mark on right side of patient. Note enlarged cecum involving about one-eighth of transverse colon, confirmed at operation. No obstruction at distal point of dilatation, but hypertrophied and thickened wall observed.

The clinical picture of the condition is obscure in ways. The definite ones are a moderate constipation in which the bowels move every second or third day, but, even if they move every day, a relative constipation exists, the definite relief of all symptoms for a day or two after active purgative, and then their return after that, taking from four to seven days; a slight degree of distention or fulness of the right side of the abdomen, noted particularly when the abdomen is thin and the walls relaxed, and the percussion of a large cecum markedly tympanitic; the clinical picture of a person who has intestinal toxemia to a marked degree, and the laboratory findings in the examination of the stools and urine confirming it; postmeal gastric distress; loss of weight; nervous breakdown and history of sanatorium treatments for this; and the noting of the large cecum by roentgenoscopy, the dilatation involving the entire section to the splenic flexure and a distance of the splenic portion of the transverse, there being no distinct obstruction or actual delay in transit at the distal point of the dilatation. It may be added that at operation, a generally dilated and slightly hypertrophic cecum without any distal obstructive condition is encountered.

Although no surgery was done after the condition was noted, the cases became free of symptoms on medical treatment. Case 1 was treated for three weeks in bed, the right abdomen massaged and treated with sinusoidal current daily, and the lower end of the bed raised.

Case 2 was treated while about. Both the patients had abdominal massage for weeks; slept nights with the foot of the bed raised; were made to rest an hour after meals; and were given small supplemental meals between the main ones and before retiring; a high fat and carbohydrate diet, this roughened with prunes sweetened with milk-sugar or honey, bran biscuits and agar-agar; an evening dose of petrolatum (a tablespoonful), and general and nerve tonics.

21 West Seventy-Fourth Street.

AN UNUSUAL CLINICAL VARIETY OF LICHEN PLANUS

(LICHEN PLANUS HYPERTROPHICUS RETIFORMIS)

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

Hypertrophic forms of lichen planus are comparatively common. The most frequent type is one which might be designated as "lichen planus hypertrophicus circumscriptus," and is characterized by the occurrence of circular, oval or elongated patches, somewhat elevated, with grayish, scaly tops and sharply defined, indurated borders. The lesions are generally reddish or purplish, always dry, and at times intensely itchy. By coalescence of the primary patches, large infiltrated areas may be produced. The sites of predilection are the legs and thighs, although the upper limbs and the trunk may be involved.

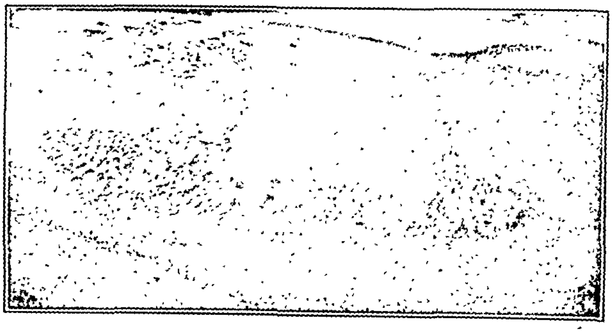


Fig. 1.—Lichen planus hypertrophicus retiformis (Case 1), showing distribution of lesions on thigh.

Other types, lichen planus verrucosus and lichen planus annularis hypertrophicus, are encountered less frequently, but present equally typical clinical pictures. In all three the histologic changes are characteristic and distinctive.

Recently I have had under observation two cases of lichen planus in which the configuration of the lesions was unusual.

Case 1.—The first case occurred in a married man of 27, a draftsman by profession, referred to me by Dr. C. B. Hopkins of Kansas City. The disorder had been present for almost a year, and had commenced as an itchy, papular eruption on the outer surface of the left thigh. A portion of the involved area had been burned quite severely, a few months before, and the patient at first ascribed the new skin lesions to irritation of the old cicatrix; but when the eruption extended to the adjoining healthy skin he became alarmed, and consulted Dr. Hopkins.

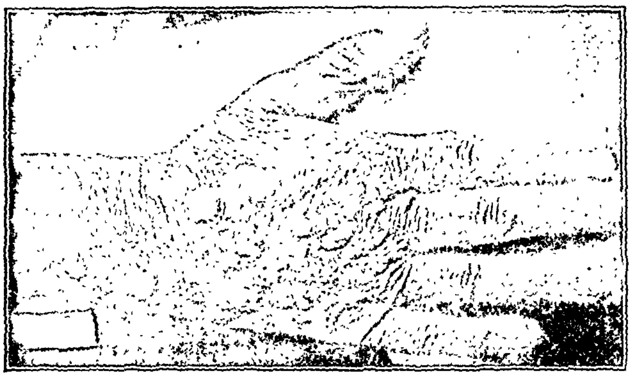


Fig. 2.—Lichen planus hypertrophicus retiformis (Case 2), showing distribution of lesions on right hand and wrist.

The disease was confined to the outer surface of the thigh, and consisted of two rough, purplish, scaly patches, the smaller of which was about 9 cm., and the larger 18 cm. in diameter. There were a few satellite lesions in the neighborhood of the larger plaque, but none of them bore any resemblance to the ordinary papules of lichen planus. The patches consisted of closely aggregated groups of large, flat or oval topped, scaly papules, angular in outline, and hard and resistant to the touch. The most striking feature, however, was the arrangement of these nodules. Many of them were connected not only to each other but also to the outlying satellite lesions by bridge-like bands of diseased tissue. The integument enclosed within the meshes thus formed was normal in texture, and showed no signs of inflammation or atrophy. The impression given was that of a heavy piece of knotted embroidery drawn tightly over the skin.

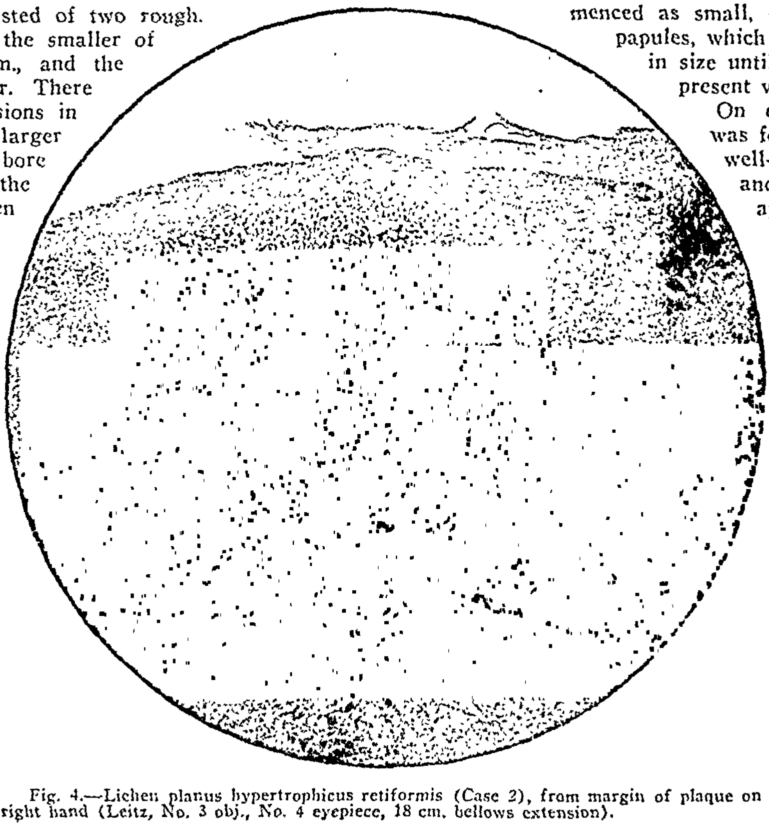


Fig. 4.—Lichen planus hypertrophicus retiformis (Case 2), from margin of plaque on right hand (Leitz, No. 3 obj., No. 4 eyepiece, 18 cm. bellows extension).

For laboratory purposes two small pieces of tissue were excised, one from the tip of a nodule and one from near the middle of an elevated connecting band. Both showed the typical histologic structure of lichen planus hypertrophicus.

While the case was apparently a unique one, I thought the peculiar configuration of the eruption was probably due to the preceding injury of the skin, and filed the case history without giving the matter much consideration.

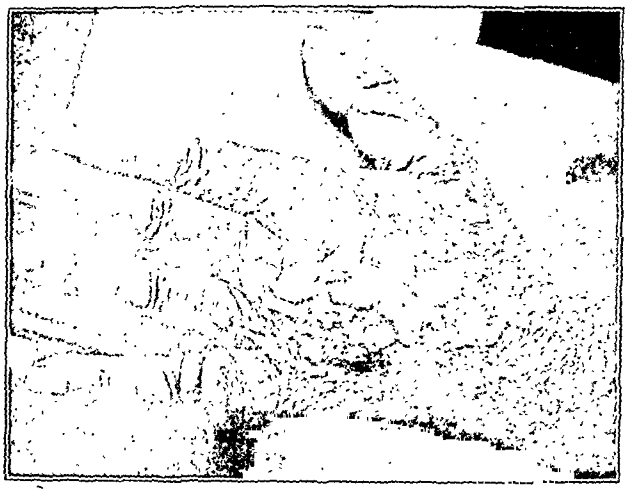


Fig. 3.—Lichen planus hypertrophicus retiformis (Case 2), showing distribution of lesions on left hand and wrist.

Case 2.—In September, 1914, however, a more striking example of the condition came under my care. The patient was a Swedish shoemaker, a married man of 63, referred to me by Dr. C. A. Federman of Kansas City. The lesions were confined to the wrists and the backs of the hands, and had been present three months. They had commenced as small, dry, red, intensely itchy papules, which had gradually increased in size until they had reached their present volume.

On examination the patient was found to be a slender but well-nourished man, nervous and easily agitated, but apparently in good health. There were some suspicious looking pearly-white patches on the inner surfaces of the cheeks, at the interdental lines, but the skin on parts other than the hands and wrists was normal. Scattered irregularly over the anterior surfaces of the wrists were numerous typical lichen planus papules and a few large, purplish, scaly nodules. The major portion of the eruption was confined, however, to the backs of the hands. The lesions were flat topped, scaly papules and plaques, with rounded or angular bases, and varied from 0.1 to 1.0 cm. in diameter. Many of them were connected with neighboring lesions at one or more points, either by bands of thickened, reddened skin or elevated, horny ridges, and the mosaic-like appearance which resulted was quite striking. The skin in the interstices was unchanged.

For microscopic study, two pieces of tissue were excised by means of a medium-sized cutaneous punch, one from the center of a small but well-defined lesion on the back of the left wrist, the other from the margin of a large plaque on the dorsum of the right hand. The specimen from the wrist proved to be of unusual interest. In addition to the sharply limited cellular infiltration in the papillary and subpapillary regions, slight acanthosis, with lateral lengthening of the prickle cells, and thickening and condensation of the horny layer which are commonly found in lichen planus, there were four well-preserved coil gland ducts emerging from the derma at one point near the center of the lesion, and a fifth penetrated the epidermis only a few microns away.

The second specimen showed only the usual changes occurring in lichen planus hypertrophicus.

Treatment.—In both cases marked benefit followed the intramuscular administration of mercury salicylate (mercury salicylate, 2.0, anesthesin, 2.0, lanolin, 4.0, olive oil, 30.0) in olive oil, a mixture which is as efficacious in lichen planus as it is in syphilis. Locally, a calamine lotion with Duhring's compound tincture of coal tar was employed during the daytime, and an ointment containing ammoniated mercury, phenol and menthol at night.

New Lathrop Building.

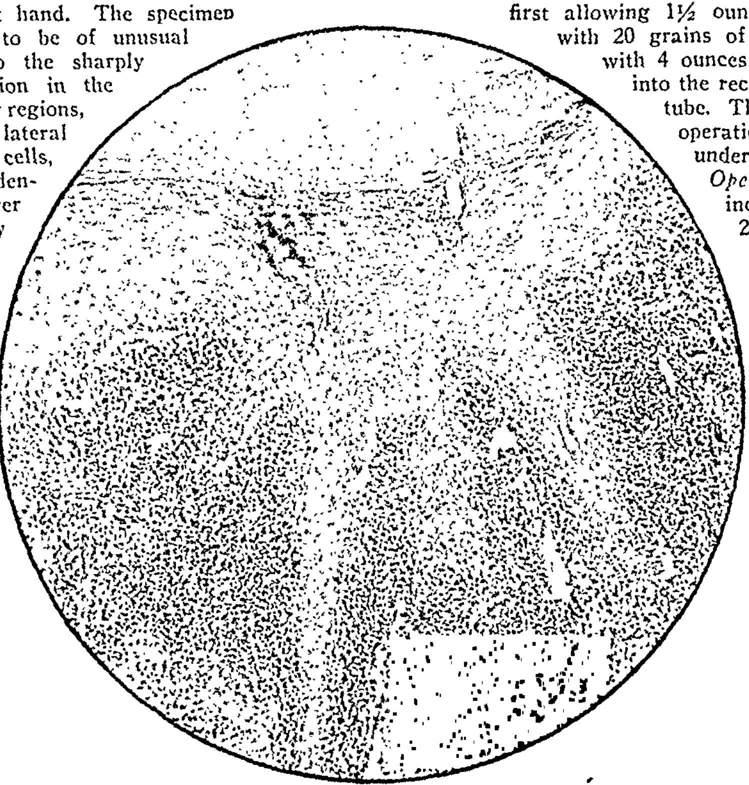


Fig. 5.—Lichen planus hypertrophicus retiformis (Case 2), from lesion on left wrist (Leitz, No. 3 obj., No. 4 ocular, 18 cm. bellows extension).

A CASE OF INTUSSUSCEPTION CAUSED BY AN INVERTED MECKEL'S DIVERTICULUM

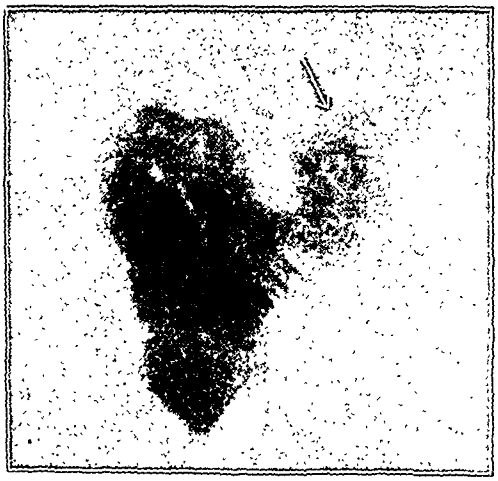
Charles R. Hancock, M.D.
Adjunct Professor of Surgery, New York Polyclinic Hospital and Medical School
NEW YORK

History.—J. P., boy aged 2 years, was seen for the first time, Oct. 28, 1914. The child had always been in delicate health, and during the first year of life suffered much with diarrhea. He had had bronchitis most of his life. The mother lost a boy from intussusception at the age of 10 years.

Forty hours before the child was seen by me he was taken with severe pain in the abdomen with vomiting. The family physician was called, and he gave him 1 dram of almond oil and several enemas without result. The child soon began to have bloody stools with mucus.

On admission to the Polyclinic Hospital, forty hours after the beginning of the attack, his temperature was 103 F., and pulse 160. He had all the symptoms of shock. The abdomen was distended and very rigid, especially over the left side. No tumor could be felt, and nothing could be detected by rectal examination with the finger.

A roentgenogram was taken by Professor Quimby, after first allowing 1½ ounces of barium sulphate, with 20 grains of powdered acacia mixed with 4 ounces of warm water, to flow into the rectum by means of a rectal tube. This located the lesion, and operation was performed at once under ether.



Intussusception caused by an inverted Meckel's diverticulum.

Operation.—A longitudinal incision, 3 inches in length, 2 inches from the median line, and with its center corresponding to the umbilicus, was made through the left rectus. When the peritoneum was opened, several ounces of straw-colored fluid escaped from the wound. The invagination, which was about 10 inches in length, was withdrawn from the abdomen, and wrapped in large warm pads. The bowel was then steadily reduced by gentle traction from above and pressure from below. On its reduction it was found that part of the ileum, the cecum, and part of the transverse colon had been intussuscepted down to the sigmoid. A soft tumor could be felt through the intestinal walls in the lumen of the bowel fixed to the wall of the ileum, opposite its mesenteric attachment, and about 12 inches from the cecum. At the site of attachment a dimple was observed, and this suggested that the tumor was an inverted Meckel's diverticulum, which had formed the apex of the intussusception.

The diverticulum, which was about the size of the ileum and 2½ inches in length, was pushed into its normal position without incision of the bowel. It was then excised, and the intestinal opening was closed longitudinally by two continuous sutures of fine Pagenstecher, one through all of the coats, the other Lembert's suture.

The patient made a good recovery, and left the hospital on the eighteenth day after operation.

224 West Fifty-Second Street.

Skimmed Milk and Foot and Mouth Disease.—L. Whitney Watkins of Manchester, Mich., official appraiser of cattle destroyed on account of foot and mouth disease, advances the theory that 80 per cent. of all foot and mouth disease in that state is caused by skimmed milk from the creameries which has been taken back to the farms for feeding to stock. He believes that most of the tuberculosis among livestock is transmitted in this way. He advocates the passage of a bill before the Michigan legislature requiring pasteurization of waste products of creameries.

New Instruments and Suggestions

INTUBATION APPARATUS AND TUBES FOR TREATMENT OF CHRONIC STENOSIS OF THE LARYNX

Henry Lowndes Lynah, M.D., New York

An endeavor was made in the construction of this speculum to follow as closely as possible the mechanism of the bivalve vaginal speculum.

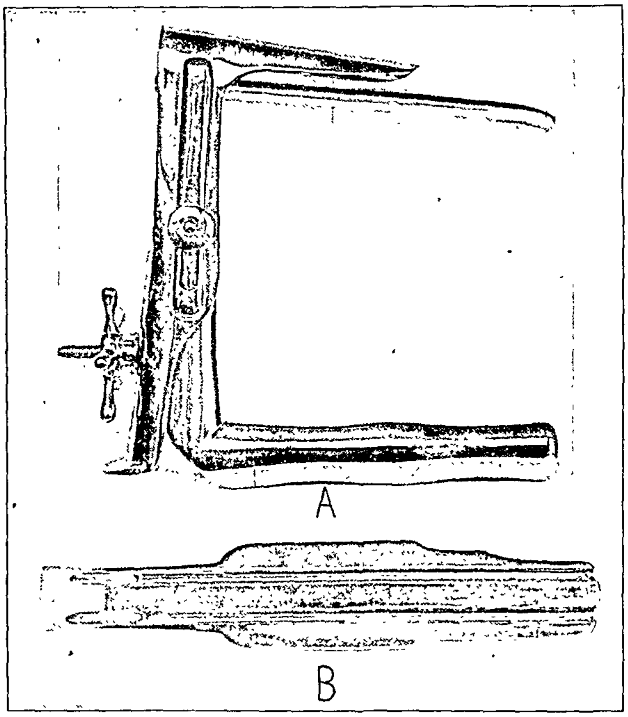


Fig. 1.—*A*, intubation speculum, showing spatula for children; *B*, adult spatula tongue depressor, lateral view, showing double light carrier.

The intubation speculum (Fig. 1 *A*) is made with an adjustable "duck bill" tooth plate. The upper blade can be raised or lowered to accommodate the size of the mouth in which it is to be used, while the lower blade is nothing more than a wide tongue depressor.

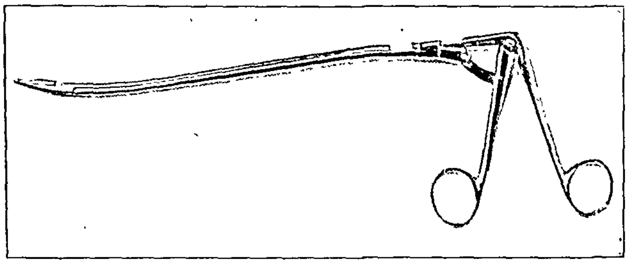


Fig. 2.—The introducer-extractor.

The upper blade is made of brass in order to allow for leverage and avoid fracturing the incisor teeth, while the lower blade, being almost flat, is made of steel to avoid bending.

The upper blade is reflected over the side of the handle of the speculum and carried downward and inward, and is reenforced by a steel plate.

The arm of the lever is slotted and attached to the side of the handle by the adjustable screw lock. In the lower portion which winds about the handle there is also a slot through which passes a fixed post threaded for the swivel wheel which not only when closing makes the tooth plate describe an arc of a circle in opening but at the same time permanently locks the same so that the mouth cannot be closed.

The spatulas are made interchangeable so that an infant or adult spatula (Fig. 1 *B*) may be readily attached to the universal handle. The spatulas also have double light carriers or a light suction carrier for those who wish to use suction. The tubes for the double lights make a railroad track which keeps the tube on introduction in the median line.

The introducer-extractor (Fig. 2) is made with an upward tilt so that the tube engages the larynx easily. Obturators are dispensed with, for the obturator is necessary only when intubation is performed at a right angle to the larynx, that is, in the "blind," or indirect method.

The dilating tubes are of "cigar shape" and dilate anteroposteriorly as well as laterally and are made with and without built-up heads. They increase 1 mm. in size over the O'Dwyer tubes up to 5 mm., made in five sizes.

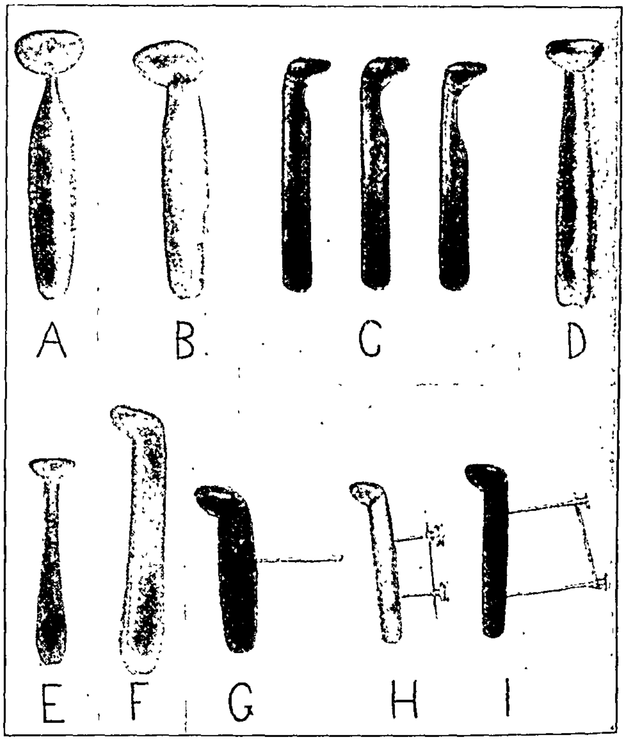


Fig. 3.—*A*, narrow neck dilating tube, lateral view; *B*, narrow neck dilating tube, anteroposterior view; *C*, abductor tubes; *D*, low tracheal dilating tube; *E*, non-cough-out tube, lateral view; *F*, non-cough-out tube, anteroposterior view; *G, H, I*, post and bridge tubes, all dilating.

The narrow neck tubes (Fig. 3 *A* and *B*) have a very small lumen and are made with a dilating body and built-up head. The lumen is too small to allow for free passage of air; therefore I have discarded their use and resorted to a more satisfactory method.

The abductor tubes (Fig. 3 *C*) are made in three sizes, with wide lateral heads but short in the anteroposterior diameter. These tubes have the posterior portion of the lumen and head cut out to allow for play of the abductors and arytenoid cartilages. By the use of these tubes reeducation of the muscle is possible and the spasm of the abductors can be overcome.

The dilating tracheal tubes (Fig. 3 *D*) are used when there is a low tracheal fistula with hypertrophy of the posterior tracheal wall. They are made in three sizes, 1 to 3 mm. increase in diameter.

The non-cough-up tubes (Fig. 3 *E* and *F*) have a low bulbous extremity which holds in the trachea. I have been using these tubes for the past four years, and so far in over three hundred cough-up cases not a single one has been coughed out after introduction. These tubes have put a stop to much of the anxiety which accompanies intubation.

The post tube (Fig. 3 *G*) has a device which can be screwed into the tube through the tracheal fistula. The tube is first introduced and scratched through the wound so that the scratch mark corresponds to the tracheal fistula, then it is removed and a thread hole bored to accommodate the post.

The bridge tube (Fig. 3 *H* and *I*) I have employed after laryngofissure. The tube is introduced through the mouth, and when in position the bridge is attached to it. Strips of adhesive plaster cross this bridge and are strapped tightly to the sides of the neck to make posterior pressure, so that the anterior fissure would heal primarily. I have discarded their use as I have resorted to dilatation only during the past five years.

Low tracheal and bronchial tubes are used only in low tracheal and bronchial diphtheria. I have been using them for the past year and so far have had gratifying results.

The tunnelled sound with obturator is employed in tracheal cannula cases when it is necessary to dilate the larynx above the cannula. The sound is tunnelled so that the patient can get air during the process of dilatation. These are made from urethral sounds. After dilatation has been accomplished this tunnelled sound is passed, the tube attached to the obturator and intubation performed. All of these tubes and apparatus are made by George Ermold of New York.

24 West Fifty-Ninth Street.

NEW INSTRUMENT FOR THE REMOVAL OF ADENOIDS

Marvin McTyeire Cullom, A.B., M.D., Nashville, Tenn.
Fellow of the American College of Surgeons

The best instrument for the removal of adenoids is the curet. It has two drawbacks: the liability of losing the growth, and the possibility of stripping down the mucous membrane on the back wall of the pharynx. Aside from these defects, no instrument has yet been devised which is superior to it.

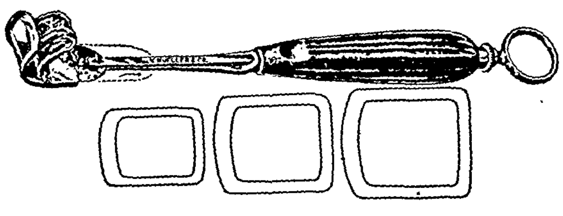


Fig. 1.—Instrument for the removal of adenoids.

I have attempted to devise an instrument which will preserve the good qualities of the curet and at the same time overcome these two difficulties.

The instrument presented has all the features of the curet. In addition it has a flexible blade which cuts the growth at the back, and a movable cage over the fenestrum of the curet which permits the adenoid to project through the instrument and enables it to get down to the very base of the growth. The flexible blade is worked by an arm running through the handle to a thumb ring. In removing the growth the instrument is thrust forward until it touches the vomer; it is then pushed down until it settles snugly around the growth, the flexible knife is thrust home with the thumb, and the adenoid is removed with a free sweep just as with a curet.

The flexible knife does not cut entirely through the growth, but the final severance is made with the sharp edge of the curet.

The growth usually comes away *en masse*. The finger is then introduced to make sure that the removal is complete. It can be used as an ordinary curet by drawing back the blade.

In the first few operations in which I used the instrument, I was rather startled by the size of the growth removed. It was because I was not accustomed to seeing the entire adenoid mass in one piece.

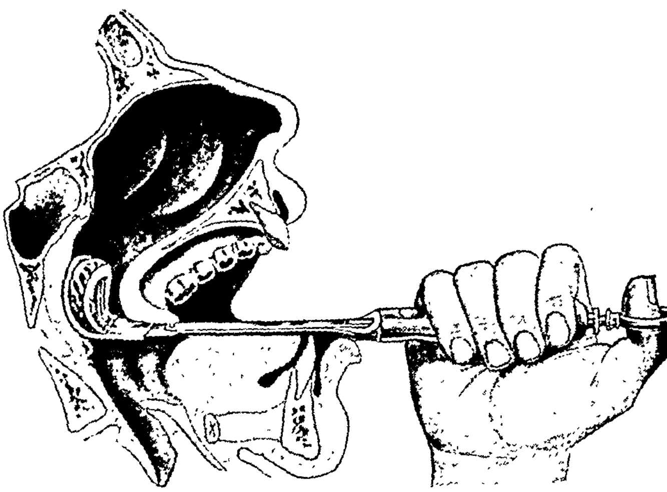


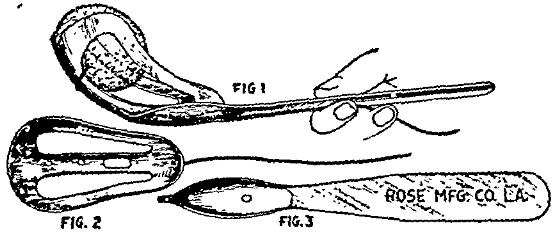
Fig. 2.—Method of use.

214 Hitchcock Building.

AN IMPROVED PESSARY AND TAMPON HOLDER

Worth Norton, M.D., Los Angeles

As will be seen from the illustration, which is about three-eighths actual size, this pessary is simple in construction and practical in application. Figure 1 shows the instrument ready for insertion, while Figures 2 and 3 picture the pessary and introducer separately. Its usefulness as a support is due to the fact that it will remain in place and hold the cervix in its normal position. It is worn without discomfort as its shape conforms to that of the vagina. The pessary is constructed of aluminum and is light, indestructible, and can be sterilized by boiling. The fenestrations laterally permit the entrance of the soft parts, doubly securing the instrument in position. As any support is needed only when the patient is on her feet, the pessary can easily be removed at bedtime and reinserted in the morning. A slightly longer and wider pessary is required for a badly lacerated case, while an atrophic, shortened vagina is best served by a shorter but slightly wider pessary. After being instructed by the physician, the patient can readily remove and reinsert the pessary.



Improved pessary and tampon holder.

This instrument has given good results in retroversion, prolapse, cystocele and general pelvic relaxation.

Medicated cotton secured within the pessary serves as a method of prolonged application to the cervix and adjacent tissues.

507 Bumiller Building.

AN ELECTRIC-HEATED WATER-JACKETED INFANT INCUBATOR AND BED

FOR USE IN THE CARE OF PREMATURE AND POORLY NOURISHED INFANTS

Julius H. Hess, M.D., Chicago
Associate Professor and Head of the Department of Pediatrics, University of Illinois, College of Medicine

To meet the requirements for the safe application of artificial heat to premature and weak infants, three conditions must be observed:

1. The heat must be of a fairly constant temperature, with a safe maximum.
2. A constant supply of fresh air must be available.
3. A normal average of humidity must be maintained.

I have attempted to meet these requirements by the construction of an electric-heated water-jacketed bed.

The bed shown in Figure 1 is constructed of heavy sheet copper with inside measurements as follows: length 30 inches, width 17 inches, and depth 13 inches. The floor and sides are surrounded by a water jacket 1 inch thick. The side walls, furthermore, are covered by a layer of cork one-fourth inch thick, which practically prevents heat radiation from the external surface, limiting heat radiation to the inner surface of the jacket, that is, sides and floor. On the left hand side a right angle hot water thermometer is inserted directly into the water chamber, which at all times registers the temperature of the water surrounding the bed. On the same side a water gage with faucet registers the height of the water and is also used for emptying the jacket during transportation. The jacket is filled through the inlet in the upper rim.

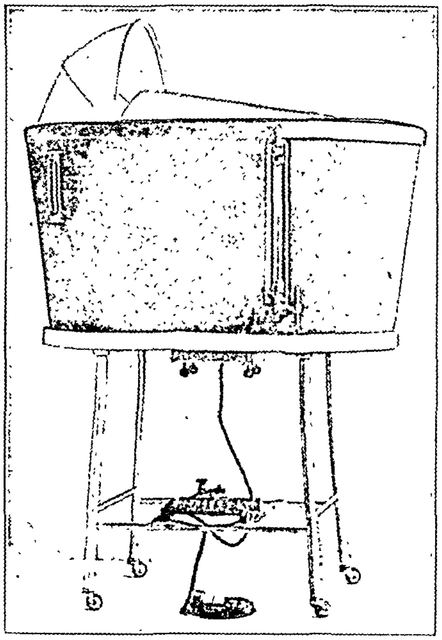


Fig. 1.—Bed complete.

In the floor of the water jacket a one-quarter inch pipe is inserted to carry off any water which might flow into the bed in case of a leak, thus avoiding all danger of flooding the crib in event of an accident to the water jacket.

The bed proper rests on a standard (Fig. 2) 22 inches in height with a metal top surrounded by a metal rim 2 inches deep, and this is lined with asbestos. The standard is supplied with ball-bearing casters, allowing of easy transportation from one ward to another if desirable.

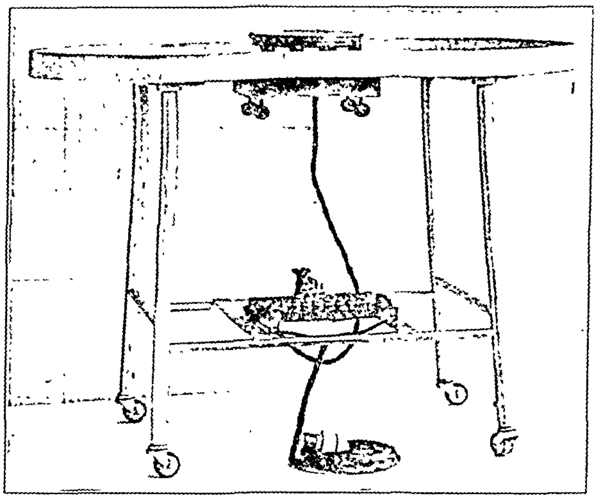


Fig. 2.—Standard for bed, with heating apparatus and rheostat.

The electric heating apparatus (Fig. 2, Simplex Electric Heating Company) is so constructed as to operate on either direct or alternating current, and consists of:

1. A stove with a 6-inch surface specially constructed to carry a maximum capacity of 300 watts (ordinary 6-inch places have a capacity approximating 440 watts), which makes it impossible to heat the water above 155, at a room temperature of 75 F. This stove rests on a drop in the metal top of the standard, and can be raised or lowered by the four thumb screws seen in Figure 2, by which means the stove can be brought into direct contact with the floor of the water jacket. This is essential to the proper heating of the water and the prevention of overheating of the stove.
2. A rheostat fastened to the lower part of the standard (Fig. 2) with seven contacts; six of them are graduated to take current varying from 25 watts on Contact 1 to 300 watts on Contact 6. The seventh contact shuts off the current.

For the protection of very frail infants, a partial cover (Figs. 1 and 3) for the tub, 21½ inches in length, is provided to shield them more completely from outside air currents. It is provided with a thermometer so that the temperature within the tub can be ascertained by the nurse at all times. Further, a wire frame covered by a removable linen cover is provided in the form of a hood (Figs. 1 and 3). This can be set over the open space not covered by the metal lid in case of great air currents and extremely cold nights. The hood raises the temperature within the bed on an average of from 5 to 10 degrees F., depending on the room temperature and current used, but does not interfere with perfect ventilation.

The baby basket (Fig. 3), which is of the type used in many obstetric wards, is 28 inches by 14 inches and has a depth of 8½ inches, which prevents any danger of the infant's extremities coming into contact with the walls of the heated water jacket. The basket rests on a standard raising it 2 inches above the floor of the bed, allowing a free circulation of air all around it. A simple linen cover is provided which encircles the basket, adding to its cleanliness and appearance. Excessive drying of the air is prevented by the constant circulation through the bed of the free air of the room and by evaporation from a flat basin, 9 by 11 inches, containing baked porous clay (as used in water filters) over which water is poured to allow of evaporation. Varying with the degrees of temperature to be maintained within the bed, it is necessary once daily to supply from 8 to 16 ounces of water to replace that lost through evaporation.

The construction of the bed is such that it is intended for use in an ordinary ward or room, giving the infant the advantage of the most perfect room ventilation. The free currents of air within the bed can be demonstrated by allowing smoke to pass over the surface of the bed, which results in dropping of the smoke in the center to near the floor, passing over it to the lateral walls and up the sides into the room.

We require inspection and charting of the temperature registered by the thermometer in the lid (if the latter is in use), or one placed within the basket if the lid is not in use, at 6, 12, 6 and 12 o'clock, as the most likely times for maximum temperature changes in the ward temperature.

As the only variable factor in the maintenance of temperature within the bed is that of the changes in temperature of the surrounding room, I have made numerous calculations at different room temperatures and have tabulated them on a card at the head of the bed, so that the attendant need only know (1) the temperature desired on the inside of the bed, and (2) the room temperature, in order that by looking at her chart she may ascertain the number of the contact point at which to place the rheostat.

The advantages offered by this apparatus are:

1. Safety. The maximum temperature to which the water can be heated with this special stove is about 155 F., with a room temperature of 75 F., and rheostat on Contact 6, this giving a maximum temperature within the bed of 110 F., with the lid and canopy on.
2. Economy of construction, operation, and most important, the elimination of the trained attendant.
3. Simplicity of operation. It needs practically no attention unless there are extreme ranges of temperature in the ward, since the cork insulation prevents radiation from the outer surface of the bed, and the heater holds the water at a constant temperature. We rarely find it necessary to change the rheostat more than twice daily.
4. Perfect control of ventilation of air within the bed, in the general wards of the hospital.
5. Humidity which is little lower than that of the surrounding air (hygrometer, Taylor Instrument Company).

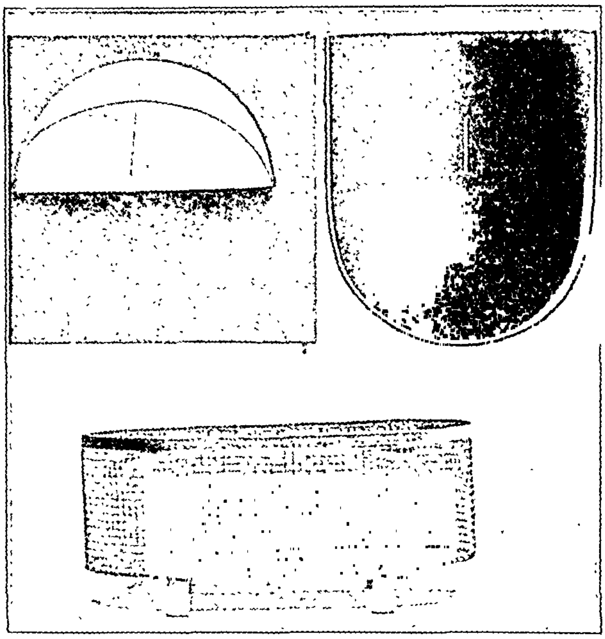


Fig. 3.—Hood, cover (with thermometer) and baby basket.

I have had three of the infant incubator beds in use in the wards of Michael Reese Hospital for periods varying from one to five months.

5514 Indiana Avenue.

NICHROME AS A SUBSTITUTE FOR PLATINUM WIRE IN BACTERIOLOGIC INOCULATORS

M. W. Lyon, Jr., Ph.D., Washington, D. C.

At the beginning of the school year last October, there was a shortage of platinum wire in the bacteriologic laboratory, Medical School, Howard University. At the suggestion of Dr. H. C. Scurlock I obtained some No. 20 nichrome wire from Eimer and Amend and have used it exclusively in my classes in bacteriology during the past semester. It has proved so serviceable and so inexpensive as compared to platinum that it seems desirable to call attention to it. Its use in this connection does not appear to be mentioned in the usual text-books and laboratory manuals and I have seen no reference to it in recent literature. Nichrome wire is so common, however, and its desirable properties so obvious that undoubtedly others have employed it before now. This wire is an alloy of nickel and chromium and is used primarily for its electrical resistance in rheostats; it has a relatively high melting point and is not easily corroded. The inoculators made from this wire have been in almost daily use for the past four months and show practically no signs of wear. The rather heavy wire selected and the inherent properties of the alloy made wonderfully stiff inoculators, with the result that there is no attempt on the part of students to make loops of straight inoculators or to straighten out those with loops, as happens with the usual small-sized platinum wire. A half pound of the wire was originally purchased and nearly 100 generously long inoculators were made and there is no obvious diminution in the amount of wire remaining on the spool which cost $2.65.

I have found aluminum wire handles to be much superior to those of glass. The No. 8 wire which I have employed is fairly satisfactory, but a heavier wire would have been better. To fasten in the nichrome wire a partial vertical split is made in the end of the aluminum wire with an ordinary bracket saw, extending about three-quarters through the wire at the end and diminishing in depth till flush with the surface about half or three-quarters of an inch back from the end. The edges of the split are then hammered over the inserted nichrome wire. The partial splitting of the wire gives a firmer support for the nichrome wire than a complete splitting.

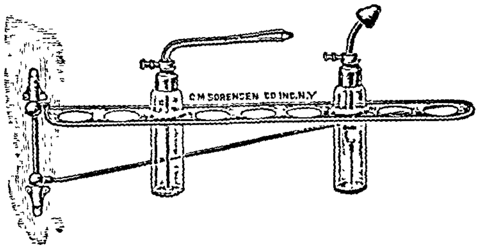
Howard University.

A NEW ATOMIZER BRACKET

Irving Wilson Voorhees, M.D., New York

The device shown in the accompanying illustration is so simple that I hesitate to say a word in explanation of it. The C. M. Sorensen Company, New York, made the first one from plans described by me more than one year ago. Since then there has been quite a demand for it; hence it seems worthy of a wider notice than it has hitherto received.

DeVilbiss atomizers are commonly used by specialists and have given good satisfaction. Unfortunately, however, the bottle stands hold at most only six atomizers, which are always in the way and are frequently upset. That explains the origin of this "swinging spray bracket." The original model was planned to hold eight bottles, and is quite large enough for most specialists. It can now be had to carry six, nine or twelve atomizers, or in fact can be constructed to order for any desired number. A desirable feature of the bracket is that it can be screwed to the wall or table so as to swing out free from its attachments. When not in use it can be pushed aside. The price averages fifty cents per hole, and is calculated according to the number of holes.



Atomizer bracket.

14 Central Park West.

Cold as a Tonic.—The human body has a wonderful power of adapting itself to changes in temperature, but the power must be educated by use. Cold is dangerous when it comes as a surprise. Make a friend of it and it is one of the best tonics you can have.—New York *Health Almanac,* 1915.

Special Article

PRACTICAL PHARMACOLOGY*

(Continued from page 995)

XII

ANTISEPTICS AND DISINFECTANTS

Antiseptics have long been used for the preservation of the human body after death and for other purposes. Of course the nature of their action was not understood in early times. The modern use of antiseptics and disinfectants in surgery dates from their employment by Lister less than thirty-five years ago.

Lister's brilliant results aroused the hope that all pathologic micro-organisms in the human body might be killed, especially those in the blood. Though this hope has not been fulfilled it has been fostered by manfacturers of proprietary preparations, and there are few branches of the materia medica in which there have been more misunderstanding and deliberate misrepresentation.

The subject of antisepsis and disinfection concerns the public health and general welfare deeply; therefore the physician should understand the general principles involved. Little more than a presentation of certain principles and a brief discussion of the more commonly employed antiseptics and disinfectants[1] will be attempted here.

It is obvious that all disinfectants will prevent the growth of bacteria, but for some reason the fact is often overlooked that an antiseptic does not prevent the subsequent growth of the micro-organisms when the necessary conditions have changed.

The importance of this lies in the fact that antiseptics are often recommended for use where disinfectants alone are of value. It is obviously useless to employ an antiseptic in washing an infant's nursing-bottle and its fittings, because an antiseptic wash is no better than water for removing bacteria, and unless they are removed or destroyed they will multiply when the bottle is filled with milk, which is an excellent culture medium.

Anything that renders the conditions unsuitable for the growth of bacteria will act as an antiseptic, but a chemical substance, to be actively disinfectant, must penetrate the bacterial cell and act on its protoplasm. Some of the more intensely active antiseptics have been mistaken for disinfectants when tested carelessly, because enough of the antiseptics were transferred to the culture mediums with the bacteria to prevent further growth, leading to the supposition that the bacteria had been killed.

The activity of disinfectants is altered by so many different conditions that it is not sufficient to know the actual or relative degree of activity of a given agent when it is used in a test-tube experiment under the most favorable conditions; it is necessary to know also the approximate activity under the conditions in which it is to be used.

Different organisms manifest wide differences in their resistance to the action of disinfectants, and among the factors which influence the destructive activity of a disinfectant for a given organism are temperature, the presence of organic matter, and the manner of cultivation of the organism. It is obvious that we cannot do more than approximately determine the activity of any disinfectant in a given condition, unless it has been tested with reference to those conditions; but the standardization of a disinfectant affords an approximate indication of its value.

Of the numerous methods proposed for standardizing disinfectants, the one known as the "Hygienic Laboratory phenol coefficient"[2] has been adopted as the basis for purchasing disinfectants by the United States government and is recognized by the Council on Pharmacy and Chemistry. Stated briefly, this method consists in comparing the activity of the agent to be tested with that of phenol under conditions which seem best calculated to indicate its usefulness.

For convenience of discussion, we shall classify the antiseptics and disinfectants arbitrarily as derivatives of benzene, urinary disinfectants and antiseptics, and general disinfectants and antiseptics. The discussion cannot be either systematic or comprehensive, but it is intended to call the physician's attention to the dependable resources at his command for internal use, and for such disinfection as the general practitioner may be called on to conduct in emergencies. Many of the derivatives of benzene may be used for general disinfection, and some of those classified as general disinfectants may be used internally.

DERIVATIVES OF BENZENE

Benzene (C_6H_6) is not actively disinfectant, but phenol, which results from the substitution of an OH for an H of benzene, is sufficiently active to be used as the standard for comparison of disinfectants, though it is far from being the most active even of this group.

The toxicity of phenol (carbolic acid) lessens its field of usefulness, but the introduction of certain molecular groups into the phenol molecule lessens its toxicity without diminishing its disinfectant action. Many compounds formed in this way are now used.

Phenol combines with protein and precipitates it from solution. When applied to the skin, phenol forms a white eschar by precipitating albumin. It does not form a stable combination, and it may be removed by washing with alcohol or glycerin, in which phenol is very soluble.

Phenol ointment or oil is not actively disinfectant, because the phenol is more soluble in fat than in the bacterial cell and does not penetrate the latter. It is anesthetic, however, because the fat penetrates the skin and permits the phenol to come in contact with the sensory nerves.

The application of pure phenol or concentrated aqueous solutions to the skin causes pain followed by anesthesia, but the use of dilute solutions is not attended with severe pain. Oily solutions are preferable to aqueous when anesthesia is desired, but the aqueous are sometimes applied to infected superficial wounds for their antiseptic action. The water evaporates, requiring frequent renewal of the solution, and this may lead to gangrene even when dilute solutions are applied to the extremities in which the circulation is poor, as it is frequently after injuries; it is better, therefore, to add a little glycerin to the solution to retard the evaporation of the water.

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* This is the twelfth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

[1] There has been so much confusion regarding the use of the terms "antiseptic," "disinfectant" and "deodorant," that it may be permissible to define these terms briefly. A disinfectant is an agent that destroys micro-organisms. An antiseptic prevents the growth of micro-organisms so long as certain conditions are maintained. Deodorants absorb or destroy odors: they are not necessarily antiseptic or disinfectant.

[2] Hygienic Laboratory Bulletin 82, April, 1912, is devoted to a discussion of this method and of the value of a large number of disinfectants which are advertised widely.

Concentrated ointments and solutions of phenol should not be used, the official 2 per cent. ointment probably being as useful as those containing higher percentages of the anesthetic.

Fatal doses of phenol depress the central nervous system, causing profound collapse, which is usually preceded by stimulation of the cord, with increased reflexes and possibly with convulsions. Consciousness is usually retained until late in the course of poisoning, and the condition of the patient may be compared to that of one suffering from surgical shock.

Phenol is absorbed at first fairly rapidly from the alimentary tract, but after the absorption of a large, but not fatal, dose it proceeds more slowly, apparently because of interference with the circulation; hence if the stomach is washed even after severe symptoms of poisoning have developed, a part of the phenol may be removed and the life be saved.

When phenol remains in the stomach bland oils are contra-indicated, because they favor its absorption, but they may be used after the stomach has been washed. White of egg should be administered immediately if it is at hand, but no time should be lost before washing out the stomach with water. Ten per cent. of alcohol may be added to the water if it does not entail loss of time, but no chemical antidote is comparable in effectiveness to the prompt washing with water in abundance. White of egg may be administered after completing the washing, as it serves the double purpose of combining with any remaining phenol and protecting the irritated mucous membrane. One should not permit any theoretical considerations of the antidotal nature of various chemical substances to interfere with the thorough washing of the stomach with water, and when this has been accomplished (the last washing should have little or no odor of phenol), attention should be paid to methods of restoration, stimulation being required if the patient is in collapse.

Concentrated phenol causes corrosion of the esophagus and stomach if it is not removed promptly, and a bland oil, such as sweet oil, is useful to allay the pain *after* the poison has been removed.

Sodium sulphate was long supposed to be an effective antidote to phenol, with which it was said to form a sulpho-carbolate. This reaction does not occur in the body, and one should avoid being misled by this popular fallacy.

Concentrated phenol "burns" on the skin are treated by washing with alcohol or glycerin, and applying an emollient or ointment.

This peculiar white eschar or "burn" is frequently seen on the hands or about the lips of those who have taken the poison by accident or with suicidal intent, and it serves as a guide to the identification of the poison; in such case the treatment of phenol poisoning should be instituted without delay. The odor is characteristic, and it may be detected on the breath in many cases of poisoning.

SALICYLIC ACID AND SALICYLATES

Salicylic acid differs from phenol by having an H of the latter replaced by the group COOH. Benzoic acid differs from phenol by having the OH of the latter replaced by COOH. Salicylic acid is obtained from oil of sweet birch, or oil of wintergreen, both being composed mainly of methyl salicylate. It is also prepared synthetically from phenol. Benzoic acid is obtained from benzoin and prepared synthetically.

The actions of salicylic acid resemble those of phenol in a general way, but it is less depressant to the central nervous system.

Large doses, such as are used therapeutically, induce symptoms resembling those caused by quinin, and with still larger doses there may be actual narcosis. The toxic symptoms include dizziness, roaring in the ears, a sense of fulness in the head perhaps with headache, and sometimes mental dulness.

Disturbances of hearing are usually transient but sometimes lasting; they are attributable to circulatory disturbances, as are those of vision, but in the more serious cases there may be injury to the nerve cells in the ear. The respiration becomes rapid with large doses, and respiratory failure ensues in fatal cases.

Circulatory disturbances result from the action on the vasomotor centers and partly from the injury to the heart, but the toxic action on the heart is not important except with the largest doses. The vessels of the skin dilate, and sweating is often profuse, the action being similar to that seen with the other drugs of the antipyretic group. The blood pressure falls with the appearance of other symptoms of collapse, when very large doses are administered.

Salicylic acid is absorbed and circulates as a salicylate, probably as sodium salicylate, which is only feebly antiseptic, and there is much uncertainty concerning the mechanism of its action in relieving the pains of articular rheumatism. It has been suggested that salicylic acid has a specific action on the organisms which cause rheumatism, but there is no clear evidence of this. Relapses are more common in those cases in which salicylates are used than in untreated ones.

Salicylic acid and sodium salicylate are irritant to the stomach, and it is customary to administer an excess of alkali with it, preferably sodium bicarbonate, to prevent liberation of the acid by the gastric juice.

Many efforts have been made to prepare substitutes for salicylic acid which would be devoid of the action of the latter on the stomach and central nervous system, while retaining its therapeutic actions. These efforts have been somewhat more successful with regard to obviating the local irritant action on the stomach than with reference to the systemic effects. Several of these substitutes will be discussed later.

The relative value of salicylic acid and the synthetic substitutes for it constitutes a question apart from that of the relative toxicity of salicylic acid itself prepared synthetically and that obtained from oil of wintergreen or oil of sweet birch. There has long been current a mistaken belief that the natural salicylic acid is less toxic than the synthetic product. This belief arose from the fact that early reports were to the effect that the synthetic product contained very poisonous impurities; but recently an extended investigation of the subject was undertaken by the Council on Pharmacy and Chemistry, and comparative results obtained with the natural and synthetic products were reported; these reports were reviewed by W. A. Hewlett, who summarized the results obtained by fifteen clinicians on 139 patients. Hewlett reports that there is no difference between the natural and the synthetic salicylic acid so far as observable results are concerned.[3] The natural salicylic acid is many times as expensive as the synthetic.

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[3] Hewlett, A. W.: Clinical Effects of "Natural" and "Synthetic" Sodium Salicylate, The Journal A. M. A., Aug. 2, 1913, p. 319.

It is commonly stated that salicylates increase the elimination of bile, but this action is probably unimportant therapeutically.

SALOL

Among the various compounds which have been introduced with a view to lessening the toxicity of salicylic acid is phenyl salicylate, or salol, as it is commonly called, consisting of one molecule of salicylic acid united to one of phenol. This is almost insoluble in the gastric juice; hence it does not irritate the stomach; but passing into the intestine, it is decomposed with the liberation of its component parts, the salicylic acid combining with sodium salts to form sodium salicylate, this and the phenol being absorbed.

Salol lacks the disagreeable taste of sodium salicylate, and it does not irritate the stomach; but its actions are obviously those of phenol and sodium salicylate, though these actions are slowly developed.

Human milk is said to contain a ferment capable of splitting salol, and gastric irritation is reported to have occurred in some cases when salol was administered to breast-fed infants.

ASPIRIN

Acetyl-salicylic acid (aspirin) is formed by the introduction of the acetyl group into salicylic acid. It is less irritant to the stomach than salicylic acid It is decomposed in the intestine with the formation of acetates and salicylates; hence its systemic actions are those of salicylic acid.

BENZOIC ACID AND BENZOATES

Benzoic acid differs from salicylic acid in having no phenolic OH group. It is obtained from benzoin and prepared synthetically. Benzoic acid and the benzoates are almost devoid of toxicity for the central nervous system, but they are also much less actively antiseptic and only feebly disinfectant.

The wide-spread use of the benzoates as food preservatives has led to discussions which at times have been more acrid than scientific. We do not know that benzoates are distinctly harmful to healthy adults when taken in moderate amounts even for prolonged periods, but we have no knowledge of their effects on those who are not in good health. Hence it is preferable to avoid the constant use of benzoates in foods.

If one cannot speak in unqualified condemnation of the use of food preservation at all times, there can be no question of the undesirability of using them to cover up and hide the renovation of partially decomposed foods.

Benzoic acid has no important therapeutic uses, so far as its internal administration is concerned. It may be used as a mild antiseptic.

CRESOLS

The cresols differ from phenol by having a methyl group—CH_3—replacing an H of phenol. The official cresol consists of a mixture of three isomeric cresols. Only one of these is desired for its antiseptic action, but it is expensive to separate them; hence the mixture is used where a cheap but efficient disinfectant is desired.

Its action resembles that of phenol, but it is less poisonous and about four times as actively germicidal. It has the disadvantage of not mixing readily with water; hence it is commonly employed in a mixture with an equal amount of potassium soap, known as compound solution of cresol. This is useful for disinfecting the skin, for lubricating the hands and as a vaginal douche. It is inexpensive and may be used for disinfecting rough furniture and rooms which are not injured by washing with soap and water.

It is used as a disinfectant in solutions of 0.25 to 1 per cent. The compound solution is used in 1 to 5 per cent. solutions for washing wounds and as a douche.

CREOSOTE

Creosote is a mixture of phenols and phenol derivatives, including guaiacol and creosol, obtained from beechwood tar.

The systemic actions of creosote resemble those of phenol, but it is credited with being useful as an intestinal antiseptic, and its beneficial effect in the treatment of tuberculosis has been explained as due to this intestinal antisepsis. The odor of creosote in the breath after it had been taken gave rise to the belief that it acts as an antiseptic in the lungs, but it has no destructive action on the tubercle bacilli in the lungs, because they are embedded in the tissues and are therefore inaccessible to the creosote.

GUAIACOL

Guaiacol is one of the chief constituents of beechwood creosote, which it resembles closely in its actions. It is somewhat less actively antiseptic and germicidal.

It is absorbed from the unbroken skin, and is then capable of reducing the body temperature, but it is prone to cause collapse.

It is used much like creosote, over which it has no decided advantages.

The carbonate of guaiacol is a crystalline powder, which is inactive until it is decomposed with the liberation of guaiacol. It is said that this decomposition takes place only in the presence of putrefactive organisms, and that its antiseptic action is developed only where it is needed.

Its tastelessness and the decomposition in the presence of putrefactive organisms would seem to give it a decided field of usefulness.

THYMOL

Thymol is a phenol obtained commercially from oil of ajowan and occurring in oil of horsemint, oil of thyme and other volatile oils. It is frequently used as a urinary antiseptic and of late it has come into considerable prominence as a remedy in hookworm disease.

Thymol iodid, formerly known as aristol, is an antiseptic powder which was supposed to represent the activities of thymol and of iodin, but it is so stable that it has little of the actions of either. There seems to be no sufficient reason for its continued use as a substitute for iodoform, to which it is inferior in antiseptic action. It is nearly odorless; at least, the odor is not nearly so penetrating as is that of iodoform.

It is used as a dusting-powder.

This may be taken as representing the type of preparations which have been introduced as substitutes for iodoform, in which it is sought to secure the antiseptic action of the latter without its disagreeable odor. Many of these preparations have been introduced, but they are not antiseptic unless they are decomposable with the liberation of iodin. Most of them have fallen into disuse, or are employed as dusting-powders, for which purpose they have no advantage over much less expensive ones.

Betanaphthol, also known as naphthol, is a phenol found in coal-tar, but usually manufactured from naphthalene. It is only sparingly soluble in water (1:950) and is absorbed rather slowly from the alimentary tract. When absorbed in sufficient amounts it is capable of inducing toxic effects, including nephritis and destruction of the red blood corpuscles.

It is more actively antiseptic than phenol, and has been used as an intestinal antiseptic; for this purpose its slight solubility and absorbability are advantages.

H. C. Wood, among others, has called attention to the large volume of fluid which the intestines contain—variously estimated at from 4 to 6 liters—and the large amount of antiseptics which would be required to be effective. While the intestinal antiseptics in common use may exert their action in the small intestine, it seems extremely doubtful whether any of those discussed so far can be administered in sufficient amount to influence the contents of the large intestine to a marked degree.

The subject of intestinal antisepsis by means of drugs intended to inhibit the growth of bacteria has received a great deal of attention, but the results hitherto reported are contradictory and difficult to explain.

There can be no doubt that the nature and character of the infection, its location in the intestinal tract, and the condition of the intestinal mucous membrane and its secretions, as well as the food residues in the bowel, must all influence the results of any efforts at intestinal antisepsis.

It is not certain that absolute asepsis of the intestine is desirable, though it is unquestionably desirable to restrain the growth of putrefactive and other pathologic organisms.

The administration of a brisk cathartic at a time when the body has not suffered serious injury from the toxins of the organisms serves to sweep out enormous numbers of bacteria mechanically, but unfortunately many remain, and if conditions favor their development there will soon be as many as before, for the number which results in one day from the unrestrained development from a single bacterium is inconceivably great.

It is a matter of common experience that calomel affords greater relief in the condition commonly called "biliousness," than do other drugs of equal purgative activity. This can be understood readily when one remembers the various ways just mentioned in which the development of bacteria may be influenced.[4] Others find a brisk saline cathartic more satisfactory in relieving the headaches and depression which are commonly associated with some form of bacterial activity in the intestine.

Attempts to modify the bacterial flora have been made by introducing cultures of lactic acid bacilli, the idea being that they will multiply and, splitting sugar, form lactic acid, which is inimical to putrefactive organisms. This method appears to be attended with some success at times, but the lactic acid bacilli die off rapidly and must be taken constantly for prolonged periods to be of any service.

Numerous forms of this culture are described in New and Nonofficial Remedies.

(To be continued)

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[4] Intestinal Antisepsis is discussed by Norman M. Harris in The Journal A. M. A., Oct. 12, 1912, p. 1344.

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 997)

XXIV

SCARLET FEVER (*Continued*)

TREATMENT

A. Isolation.—Strict isolation measures, already discussed under other headings, are most important in this disease, and the nurse should distinctly understand that it is the secretions of the mouth and nose, and perhaps suppurating complications, that carry infection. Also, she should understand that the greatest possible care to disinfect or sterilize articles contaminated by such secretions should be exercised, as the infecting germ is persistent and lives for a long time unless killed. The best equipment of the most appropriate room available for the care of the scarlet fever patient needs no further discussion. Sunlight is essential, as in all infectious diseases. The most efficient cleanliness of the patient, the nurse, and the physician who handles the case is also essential. If a child in a tenement house or in a house where there are other children cannot be properly isolated, he should be sent to a contagious-disease hospital, if there is such.

B. Diet, etc.—As in the beginning of all diseases, especially the infectious diseases, the bowels should be thoroughly evacuated with castor-oil, calomel, or whatever the physician deems best; subsequently, they should be moved daily by some gentle laxative, found efficient. If the patient has diarrhea, it is generally caused by a mistake in the diet. Milk is the best basis for the diet in scarlet fever. Intestinal indigestion is not frequent. Foods that add products to the blood that during excretion are likely to cause irritation of inflamed kidneys should be avoided.

It is open to discussion whether a mild nephritis is a complication of scarlet fever or a part of the disease. We believe it is a part of the disease, and a logical part of it. Whether germs or toxins are excreted by the kidneys and irritate them, as has been suggested, it is certain that when the skin of one-third or more of the body is inflamed, becomes dry and does not properly secrete or excrete even water, the kidneys almost invariably become irritated, if not inflamed. Theoretically, the more intense the inflammation of the skin, the greater the amount of desquamation, the greater the amount of chilling of the body, and the greater the amount of decomposition products of protein metabolism, the more the liability to nephritis. The aim of the physician, therefore, should be to diminish the inflammation and irritation of the skin, to keep it warm, to attempt to keep it moist and promote its secretion, and to give a diet rather low in proteins and without meat, meat extractives or purins. Also, if possible, no drugs should be administered that tend to irritate the kidneys, especially after the first week of the illness. Such drugs are coal-tar products, synthetic products, caffeins, and any of the drugs that are known as stimulant diuretics. Even drugs that contain salicylic acid should be avoided.

The diet, then, in scarlet fever first depends on the amount of fever and the severity of the illness. The greater the intensity of the disease, the more liquid the diet should be. While milk is the basis, thin cereal gruels are advisable from the start. It should not be forgotten that death in many an acute disease is now known to have occurred from acidosis, due to a protein and albuminous diet and to withholding starches and sugars. Malted milk may be added to this diet, and lemonade or orangeade or oranges, as deemed advisable. Later, toasted bread, crackers, and various kind of cereals, and still later, baked potato, rice, corn starch, and many other cereal and milk foods, as well as a greater variety of fruit, should constitute the diet.

As soon as the convalescence is established, and even before, if the disease is prolonged, a small dose of iron should be given daily, as on the above diet the blood cannot get this nutriment. A sugar of iron (saccharated oxid of iron) 3-grain tablet should be given from one to three times a day. Sodium chlorid should always be given a patient from the beginning, once or twice a day, in one or more of the feedings. If there is a tendency of the nose and throat to bleed, or there are hemorrhages in any other part of the body, lime-water should be added to the diet. The patient should always receive plenty of water. If any apparent irritation of the kidneys occurs, it may be well to withhold some of the fruits and to temporarily diminish the amount of food.

C. Fever.—The temperature can be very high in scarlet fever and represent a dangerous factor in the disease. If the bowels are properly moved, and the diet is carefully regulated, and the throat, nose and nasopharynx are kept as clean as possible to reduce the secondary streptococcic infection, the temperature will be much lower than when these causes of increased temperature are neglected.

If the temperature becomes very high it may be advisable to give several doses of an antipyretic, such as acetanilid, antipyrin, or acetphenetidin, always bearing in mind the irritant effect of these drugs on the kidneys. Hot sponging of the body will also tend to reduce the temperature and make the patient comfortable. It relieves itching, and many times is soothing. Cold sponging in scarlet fever is inadvisable and uncalled for. If the fever is excessive, tepid sponging may be tried. Restlessness and sleeplessness will also increase the fever, and often a few doses of sodium bromid will be of great benefit. It not only causes the patient to sleep, but reduces the irritability of the peripheral nerves. Also, anything that relieves itching or burning of the skin will reduce the temperature and the irritability. Quinin is inadvisable, as it is excitant to the brain and may tend to congest the ears and add one more element that may cause middle-ear complications. An ice cap to the head, unless actual meningitis is present and the hair is clipped close to the scalp, is inadvisable. Whether ice caps to the head ever reduce general temperature is open to grave doubt. If there is meningitis, they may relieve the local congestion. We doubt if they are ever of much value in general high temperature. In this form of treatment the ice cap should be applied whenever the patient is sponged with cold water. Ice caps, however, tend to fall to one side or the other of the head and unnecessarily chill the ears, and may become another factor in causing middle-ear inflammation. The value of an ice bag over the mastoid when it is in danger is not under discussion; but an ice cap over an external ear is not called for, and may do harm.

D. The Throat and Nose.—Antiseptic, alkaline and cleansing gargles and sprays for the throat and nose are not different from those described under diphtheria. The value of boric acid, both in mixture and as insufflated powder, is the same as in diphtheria. The cleaner the nose and throat in scarlet fever, the less the secondary infection, the less the toxemia, and the less the danger. Whatever method is used to clean the nostrils, such pressure of the liquid as would tend to force infection into one or the other of the sinuses must never occur. If there is no purulent discharge from the nostrils, it is inadvisable to spray or douche them, as much harm can be done from too strenuous or unnecessary treatment of the nose.

E. The Skin.—Whatever the temperature, hot sponging for cleanliness once or twice a day is of advantage, is soothing, and advisable. Whatever the temperature, sponging with alcohol in any form is inadvisable. Alcohol, unless the solution is so dilute as to represent not alcohol, but only an alcoholic odor, will tend to dry the skin, cause more itching, and more discomfort. The more moist the skin, or the more natural oil that is excreted on the skin, the healthier it is. Also, we believe that the less the skin is dried and rendered nonsecreting, the less likely is the danger of a kidney complication. Sometimes sponging with bicarbonate of soda in warm water soothes the irritability and stops the itching. Powdering with some soothing talcum powder often stops itching and quiets the patient.

As soon as the acute eruption is over and desquamation is about to begin, the gentle rubbing into the skin of some bland oil, as cocoanut oil or almond oil or wool-fat, sometimes with a little glycerin and water, hastens the removal of the dried epithelium, prevents scales from flying about (although these scales do not carry the contagium) and is very quieting to the patient, by preventing the irritation and itching. As soon as convalescence is established, a more active massage of the skin and muscles is advisable.

The use of mercuric chlorid or phenol solutions of any strength, or phenol ointments, on the skin, is inadvisable and inexcusable. Most of these solutions tend to dry the skin still more; the use of phenol ointment might result in some absorption and therefore is of danger to the kidneys. Also, as it seems to be a fact that the contagium is not spread by the skin, there is absolutely no excuse for germicidal ointments or applications.

Unless the temperature is very high and head symptoms are present, it is unnecessary to cut the hair close to the scalp. If the scalp itches, as it often does, some simple sedative solution may be used, Later, a simple gentle shampoo may be given and a little petrolatum rubbed into the scalp. A tar soap may stop the itching. Oil of eucalyptus has been recommended and used as a non-irritant application to the skin and scalp. Also, throats have been swabbed with oil of eucalyptus preparations, in the belief that eucalyptus oil is especially antiseptic in throat contagions.

F. The Heart.—Cardiac stimulation, especially in children, is rarely needed in this disease. The toxin of this disease is not as depressant as is that of diphtheria, and strychnin is generally inadvisable as it causes too much cerebral stimulation, especially in children. Death from this disease generally occurs by its very intensity, or from some complication, and is not from prostration and shock. In the malignant or fulminating form of this disease, in which death may occur on the first or second day, the temperature is generally excessively high, and the pulse may be rapid and feeble, but stimulation of the heart would even then be of but little value. Patients afflicted with this type of scarlet fever often have convulsions, and generally die in coma. Such deaths are often like a fulminating cerebrospinal meningitis.

On the other hand, if a long septic process follows scarlet fever, or there is later a septicemia, small doses of strychnin may be of value, and alcohol is of value as not only adding a food, but as tending to prevent a dangerous acidemia. Also, in such septic conditions, as much carbohydrates should be given as the patient can digest.

If joint complications occur, there is more likely to be an endocarditis, and perhaps chorea may develop.

G. Later Complications.—Inflammations in the nose and its adjacent sinuses have already been sufficiently discussed. *Middle-ear inflammations* should be expected and watched for. The drums should be early punctured if there is pressure, and the services of an expert on diseases of the nose, throat and ears should be early sought by the physician, if any of these complications occur.

It may here be emphasized that it has been proved that hexamethylenamin (urotropin) can be of no value in these throat, nose, sinus, ear, or even meningitis cases as it will not furnish formaldehyd and therefore cause antiseptic action, except in acid secretions or solutions. Also, it is a fact that it can more or less irritate the kidneys; therefore, in scarlet fever throughout its entire course this drug should not be given.

The *glands* of the neck are almost always congested and enlarged in scarlet fever, and one or more may tend to suppurate. It often seems that the local application of a proper-sized ice bag to a gland, if the patient will tolerate such an application, aborts serious inflammation. However, if such a suspicious gland continues to enlarge, the temperature rises and blood counts show an increasing leukocytosis, there is probably pus formation, and the gland should be soon opened. The surgeon, however, often decides that he prefers to have warm applications for a short time to cause more rapid breaking down of the central suppurating portion of the gland, so that more complete evacuation may occur on incision. The subsequent dressings and treatment of such an abscess are purely surgical. The temperature will generally drop after the evacuation of the pus, unless there is some other localized septic process.

Although the percentage of occurrence of *nephritis* in or following scarlet fever is not great, it occurs sufficiently often to be always looked for and expected. As above urged, all drugs that irritate the kidneys, and all foods that cause irritation should be withheld. While it has not been shown that meat will cause nephritis, it is not necessary to add meat to the diet in scarlet fever. Many believe that eggs should not be allowed. The withholding of eggs as a preventive of nephritis hardly seems necessary. Some physicians even withhold salt from the food; this does not seem necessary. If the amount of urine greatly diminishes and albumin appears, there may not be an actual nephritis, but it may be well to attempt to forestall or abort such an inflammation. Hot packs or applications to the lumbar region can do nothing but good. A general body sweat is entirely inadvisable, and the value of profuse sweating in uremic conditions is even quite doubtful. Perhaps the best preventive of nephritis is prolonged rest in bed for at least a week after the fever has ceased, as it seems to be a fact that the better the action of the skin, the less likely are the kidneys to become inflamed, and the skin will be warmer, and is likely to be more moist in bed than when the patient is about. Chilling of the body following scarlet fever is an important added cause for the development of nephritis. Also, if the kidneys have been sufficiently irritated to cause a distinct predisposition to nephritis, an increased use of the muscles, whether by playing, exercise, or work, too soon after the acute symptoms are over, may so increase the excretory substances from muscle metabolism as to add a very tangible factor to further irritation of the kidneys and consequent nephritis. If nephritis develops, the treatment becomes that of acute Bright's disease.

H. Convalescence.—As just suggested, the patient should remain in bed one week after the fever has ceased, and the subsequent convalescence should be prolonged and carefully watched. During the acute stage of the disease the urine should be examined daily, to note the first appearance of albumin and how long it persists. During the convalescence the urine should be examined at least every other day for two weeks, and once or twice a week for several weeks more. The diet should be increased and most foods allowed, except that it may be well for at least two weeks not to give meat. During this period the patient should continue to receive iron. A simple bitter tonic may be advisable to stimulate the appetite. If the weather is cold and damp, great care must be taken that the patient be not exposed.

Just how long the germ of infection persists in the mouth, and especially in the nose, has not been determined, but secondary cases can occur when the patient, especially if he has a nasal discharge, has been allowed to play with other susceptible children. It was long thought that the desquamating skin was the cause of this late infection of others.

As it is conceded that streptococcic infection is concomitant with the cause of many of the complications of scarlet fever, vaccine treatment with stock vaccines or autogenous vaccines has been suggested and advised to hasten the eradication of left-over septic processes. The same rules and regulations, and the same frequency of success will doubtless occur in the septic processes following scarlet fever as with any other septic process.

SO-CALLED SURGICAL SCARLATINA

Although this name has long been given to eruptions that occur during a septic infection, it is very doubtful if they bear any relation to scarlet fever. If real scarlet fever occurs after an operation, the infection probably had nothing to do with the operation or the septic process. That the eruptions from septic processes are probably not scarlatinal was well proved ten years ago by Alice Hamilton.[2]

(To be continued)

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[2] Hamilton, Alice: Surgical Scarlatina, Am. Jour. Med. Sc., July, 1904, p. 111; abstr., The Journal A. M. A., July 23, 1904, p. 283.

The Field of the Scholar in Medicine.—To-day medicine is so inclusive that few men venture into other fields without forfeiting their allegiance to it. I would, therefore, define my idea of the scholar in medicine as one who makes medical science or biology which includes medicine, the foundation of his undertakings.—Theobald Smith, *Boston Med. and Surg. Jour.*

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The second splendid novel investigation was the finding of secretin by Bayliss and Starling of London, in 1902. The discovery of a fairly specific chemical stimulant for the pancreatic gland, acting through circulatory rather than nervous channels, and furnishing a rational explanation of the unique regulatory interrelations between the digestive functions of the intestines and the gland furnishing secretions to it, suggested many new questions. The advent of the hormone idea has been welcomed as an aid to the possible solution of hitherto most perplexing situations in the economy.

Although the relation of the pancreas to carbohydrate metabolism has generally been regarded as entirely distinct from those functions of producing an external (in contrast with an internal) secretion with which the secretory hormone is concerned, there have been intimations from time to time that the two phenomena might, after all, be somewhat connected. A few years ago, several serious clinical studies were made in relation to this point. It was believed for a time by some of the participants that a favorable influence could be exerted in cases of human diabetes of pancreatic origin by stimulating the failing organ through administration of secretin obtained from duodenal extracts. The underlying hope was, of course, that, since secretin has the property of causing a greatly increased flow of pancreatic juice, it might also provoke other activities of the pancreas at the same time. The consensus of clinical reports, as well as the more critical laboratory findings, has been unfavorable, and this proposed therapeutic procedure is now practically abandoned.

An aftermath of these discarded attempts is found in a recent attempt, at the pharmacologic institute in Göttingen, to determine the possible interdependence of the so-called internal and external secretory functions of the pancreas in another way. By detailed experiment, Loeb and Stadler[1] have ascertained the assimilation limits of a series of animals for glucose before and after administration of secretin. The introduction of the carbohydrate was accomplished intravenously so as to exclude the alimentary variables that attend oral administration.

The results were clearly negative. The limit of utilization of glucose was not at all altered by the presence of the additional hormone inciting the secretion of pancreatic juice. Whether or not the secretory and metabolic functions are associated with entirely different sets of cells is not decided by this research. With the failure to affect the assimilation capacity for carbohydrates in this experimental way, the failure of the secretin therapy in diabetes is again emphasized.

WHY PHYSICIANS ERR IN DIAGNOSIS

Since the announcement by Cabot[2] that post-mortem findings reveal a high percentage of incorrect clinical diagnoses, the question as to the reason is important. In many institutions special attention has been devoted to the problem, and in the city of New York it was made the subject of a municipal report.[3] Recently, in London, a well-known graduate school invited thirty-four specialists to speak on common mistakes encountered in their particular fields. In a review of these lectures, Abrahams[4] has presented an outline and analysis of the causes of error. It was, of course, surprising to find that the field of medicine could be divided into thirty-four specialties. A few decades ago such a series of lectures could include but five or six topics. To-day the chest is divided into the lungs and the heart, and, says Abrahams, "even the cardiac specialist exhibited a marked tendency to dichotomy, for a struggle between displaying his experiences as a clinical diagnostician and his skill as a mechanical cardiologist was manifest."

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Errors in diagnosis are due to certain definite causes. The large percentage of such errors are avoidable, but only by ascertaining wherein the defect lies can improvement be possible.

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Social errors, under which are listed (1) bad deportment and (2) lack of tact, affect chiefly patients suffering from such functional disorders as hysteria, psychasthenia and neurasthenia. Social errors prevent the physician from gaining the necessary confidence of such patients and inhibit the establishment of the thorough sympathetic understanding which should exist between the functional neurotic and his physician.

Clinical errors are due to (1) ignorance, (2) faulty judgment, (3) obsession, (4) failure to think anatomically, (5) failure to think at all, (6) reluctance to accept responsibility, (7) inherent difficulties in the case and (8) incomplete examination. Naturally these divisions may overlap in their application to any special case.

As examples of gross ignorance, the author mentions overlooking a large amount of cerumen as a cause of deafness, or diagnosing a swelling in the abdomen, four days after labor, as "acute metritis" when in reality it is a bladder full of urine. Ignorance itself may, indeed, be classified as the ignorance of fundamental facts, ignorance of the existence of rare conditions and the almost inexcusable ignorance of the recent progress in medical science.

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Much more rare is the error due to obsession; it is well-known that the syphilologist is inclined to see in every lesion the results of the widely spread *Treponema pallidum*. To think anatomically means to consider in the analysis of any local condition all the possible anatomic and physiologic relationships of that part.

Mistakes from inherent difficulties in the case are the type which can be condoned. Circumstance alone may supply insuperable difficulties. There are human limitations. A shadow in a roentgenogram is but a shadow, and any one might mistake a gallstone for a stone in the right kidney, or a calcified gland for either.

Sad to confess, mistakes from incomplete examination form the largest class. Nearly all avoidable blunders result from this cause. Insufficient examinations are due usually to lack of time, sometimes to laziness. There are, of course, patients who object to complete and thorough examination. This can never be a satisfactory excuse; a case should be relinquished when it cannot be sufficiently studied. "It is better," warns Abrahams, "to lose a patient than to lose a reputation."

Bissell and Le Count[5] have analyzed the relations of the clinical diagnosis to the post-mortem findings in two hundred deaths in coma. In brief, their study has shown that there is a gradual increase in the number of correct diagnoses with the length of time patients are under observation.

There is, then, one class of mistakes which can be condoned. This class is bounded by human limitations. The others are avoidable. Mistakes due to gross ignorance and faulty judgment may be overcome and are being overcome by increased preliminary requirements and other improvements in medical education and by an endeavor on the part of most physicians to keep abreast with the advance in medical knowledge. Mistakes due to lack of time and thorough study will be overcome when physicians resolve to study each case thoroughly with the use of the many available accessories to medical practice.

RELATION OF DIET DEFICIENCIES TO THE PROPORTIONS OF THE FOODSTUFFS

The possibility of inducing a characteristic polyneuritis in birds by feeding them an exclusive ration of polished rice has afforded a great impetus to the study of the deficiency diseases, of which beriberi is now accepted as one characteristic type. The phenomena of this experimental condition and the symptoms in human cases have much in common, and evidently afford something more than mere analogy as a basis for studying the pathologic factors and curative procedures that suggest themselves. The general contention that beriberi is essentially privatory in origin is widely accepted; but there are many details yet to be worked out. The nature of the substance or substances missing from the diet on which maintenance of health depends is unknown, and the problem of contributory factors has scarcely been attacked.

The earlier experiments, which have been reviewed in THE JOURNAL from time to time, have given the impression that the fundamental feature in this type of polyneuritis is the lack of a certain quantum of the so-called "vitamins." It follows from this that if the missing ingredient is supplied, there will be a restoration of function. If polished rice is more or less deficient in certain essential food components, one might naturally expect that the feeding of more rice (with whatever "vitamins" it still contained) would retard rather than hasten the onset of deficiency disease. This is quite the reverse of what has been found in experimental trials. Several investigators, though not

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[5] Bissell, W. W., and Le Count, E. R.: A Consideration of the Relative Frequency of the Various Forms of Coma, THE JOURNAL A. M. A., this issue, p. 1041.

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Much more rare is the error due to obsession; it is well-known that the syphilologist is inclined to see in every lesion the results of the widely spread *Treponema pallidum*. To think anatomically means to consider in the analysis of any local condition all the possible anatomic and physiologic relationships of that part.

Mistakes from inherent difficulties in the case are the type which can be condoned. Circumstance alone may supply insuperable difficulties. There are human limitations. A shadow in a roentgenogram is but a shadow, and any one might mistake a gallstone for a stone in the right kidney, or a calcified gland for either.

Sad to confess, mistakes from incomplete examination form the largest class. Nearly all avoidable blunders result from this cause. Insufficient examinations are due usually to lack of time, sometimes to laziness. There are, of course, patients who object to complete and thorough examination. This can never be a satisfactory excuse; a case should be relinquished when it cannot be sufficiently studied. "It is better," warns Abrahams, "to lose a patient than to lose a reputation."

Bissell and Le Count[5] have analyzed the relations of the clinical diagnosis to the post-mortem findings in two hundred deaths in coma. In brief, their study has shown that there is a gradual increase in the number of correct diagnoses with the length of time patients are under observation.

There is, then, one class of mistakes which can be condoned. This class is bounded by human limitations. The others are avoidable. Mistakes due to gross ignorance and faulty judgment may be overcome and are being overcome by increased preliminary requirements and other improvements in medical education and by an endeavor on the part of most physicians to keep abreast with the advance in medical knowledge. Mistakes due to lack of time and thorough study will be overcome when physicians resolve to study each case thoroughly with the use of the many available accessories to medical practice.

RELATION OF DIET DEFICIENCIES TO THE PROPORTIONS OF THE FOODSTUFFS

The possibility of inducing a characteristic polyneuritis in birds by feeding them an exclusive ration of polished rice has afforded a great impetus to the study of the deficiency diseases, of which beriberi is now accepted as one characteristic type. The phenomena of this experimental condition and the symptoms in human cases have much in common, and evidently afford something more than mere analogy as a basis for studying the pathologic factors and curative procedures that suggest themselves. The general contention that beriberi is essentially privatory in origin is widely accepted; but there are many details yet to be worked out. The nature of the substance or substances missing from the diet on which maintenance of health depends is unknown, and the problem of contributory factors has scarcely been attacked.

The earlier experiments, which have been reviewed in THE JOURNAL from time to time, have given the impression that the fundamental feature in this type of polyneuritis is the lack of a certain quantum of the so-called "vitamins." It follows from this that if the missing ingredient is supplied, there will be a restoration of function. If polished rice is more or less deficient in certain essential food components, one might naturally expect that the feeding of more rice (with whatever "vitamins" it still contained) would retard rather than hasten the onset of deficiency disease. This is quite the reverse of what has been found in experimental trials. Several investigators, though not all, report that birds consuming larger rations of polished rice develop polyneuritis sooner than those on a smaller intake. In some instances it is further declared that additions of rice to certain otherwise suitable diets favored the onset of symptoms. Otherwise expressed, it appears that when the ration is increased by the addition of a material like polished rice, with a very low content of antineuritic substance, although the daily allowance of active substance is slightly increased, the development of polyneuritis is actually accelerated.

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[5] Bissell, W. W., and Le Count, E. R.: A Consideration of the Relative Frequency of the Various Forms of Coma, THE JOURNAL A. M. A., this issue, p. 1041.

A possible explanation for the foregoing apparently anomalous facts has been proposed by Braddon and Cooper.[1] They believe that the amount of antineuritic substance required by the organism increases with the quantity of carbohydrate metabolized. As Braddon and Cooper express it, for the maintenance of health the intake of active substance must therefore be adjusted so as to stand in some quantitative relation to the ration of carbohydrate ingested. It is when this necessary balance is not maintained in the dietary that, according to these British writers, beriberi results.

If it shall prove correct that a deficiency disease may develop when a dietary containing an adequate amount of antineuritic substance for ordinary needs is supplemented by carbohydrate deficient in the essential substance, features of practical importance at once suggest themselves. We are reminded by Braddon and Cooper that attention must be paid not only to the absolute amount of antineuritic foods in the dietary, but also to the proportion which this bears to the amount of carbohydrate in the ration. According to Braddon,[2] certain facts in human beriberi parallel these observations on birds. In epidemics of the disease in man, the well fed are actually more likely to succumb than the underfed. Furthermore, in some asylums and prisons in which the dietary has been varied from time to time, every increase in the polished rice component, that is, the carbohydrate intake, the rations of other foodstuffs remaining the same, has been attended by increased beriberi.

If these newer views of the quantitative relations of the antineuritic substances shall be substantiated by further investigation, and it shall be shown that the need of such accessory food components involves relative as well as absolute demands, the problem of economic utilization of these active substances will arise. The advice of Braddon and Cooper is a safe guide where deficiency diseases are likely to arise: The proportion of antineuritic foods in the diet should be maintained as high as possible, and large rations of foods deficient in the essential substances should be avoided. Our knowledge of the latter needs to be extended greatly.

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[1] Braddon, W. L., and Cooper, E. A.: The Influence of Metabolic Factors in Beriberi, Part I, The Effect of Increasing the Carbohydrate Ration on the Development of Polyneuritis in Birds Fed on Polished Rice, Jour. Hyg., 1914, xiv, 331.

[2] Braddon, W. L.: Cause and Prevention of Beriberi, London, 1907.

A GERMAN DECISION IN RELATION TO A FOOD PRESERVATIVE

The decision of the Supreme Court in the case of the now famous bleached flour, over which a legal contest was begun in Kansas City in 1910, has been interpreted by some as virtually nullifying the pure food law of 1906. As a recent writer[1] has stated it, the decision has been construed to mean that the government is now compelled to prove by more direct evidence than heretofore that a given food product containing a given added ingredient is poisonous or injurious to health, because of the presence of the added injurious substance—in other words, that the government must be able to produce demonstrably injurious effects by feeding experiments with the adulterated food.

In a recent "health talk" on preservatives in foods, Folin[1] has taken a position that must commend itself to those who favor a conservative attitude in this much-debated field. There is no known chemical poison, he reminds us, the effect of which is so deadly that a person cannot take a little of it without suffering any serious consequences. While this is unquestionably the correct position, so far as producing demonstrably injurious effects in a relatively short time is concerned, it is, he thinks, not a theoretically sound position, when it becomes a question of the consumer's being called on to take the drug or chemical to the end of his days. Here it is not a question of being poisonous, but rather of being merely injurious to health. And here we are, in his judgment, bound to take the position that any substance known as a poison must be assumed to be injurious to health, even when taken in the smallest doses, unless we have definite and specific reasons for believing that it fails to have any effect when the dose is minute. Hydrochloric acid, common salt, and possibly acetic acid, benzoic acid, and alcohol might be named as substances which are poisonous in large amounts, but which may be regarded as harmless if the amounts taken are sufficiently minute. Folin thinks that, in the case of most dangerous chemicals, it is neither safe nor sound public policy to assume that they may be made ingredients of our daily food, even though the quantities used may be small as compared with the doses capable of producing demonstrable results. So long as failing health before old age is as common as it is, we cannot afford to extend the benefits of reasonable doubts to any poisonous or deleterious ingredients added to our food.

A recent decision of the referees in the case of a contention before the Prussian government in relation to the use of cinnamic acid as a food preservative illustrates how in Germany the burden of proof has been placed on the manufacturer rather than on the consumer and his government. Cinnamic acid, even in comparatively small concentrations, has undoubted preservative efficiency, and is presumably more active than either benzoic or salicylic acids of the same strength. A preparation consisting of this acid mixed with milk-sugar has been offered for sale as a preservative for marmalades, fruit juices and conserves of various types. The toxic dose of cinnamic acid is comparatively large, amounting to several grams per kilogram of body weight in small animals. Little is known about its action on metabolism or its pharmacologic behavior; and despite the fact that the salts of cinnamic acid were at one time employed somewhat as medicinal agents, it is impossible to make any convincing statements on the basis of existing literature. The evidence at hand, it must be admitted, does not suggest any particularly harmful character for preservative doses.

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[1] Folin, O.: Preservatives and Other Chemicals in Foods: Their Use and Abuse, Harvard University Press, 1914.

There is no compromise in the German report of Professors Heffter and Rubner[2] of the University of Berlin. We quote their decision verbatim. "The harmlessness of phenakrol—the product in question—as alleged in the advertisements of the manufacturer is by no means proved. From the point of view of the public health, therefore, we must be skeptical in regard to the use of cinnamic acid as a preservative so long as there are no conclusive experiments in existence to demonstrate the entire innocuousness of this substance for the human organism." There is no subjugation of public interests to private gains in such an attitude.

Current Comment

LESIONS OF THE HYPOPHYSIS IN DIABETES INSIPIDUS

When diabetes insipidus occurs without any apparent organic lesion, the cases are spoken of as primary or idiopathic. In a large proportion of the instances of diabetes insipidus there is organic disease in the brain or elsewhere; such cases are classed as secondary, the organic lesion being regarded as the cause of the polyuria. Trauma of the brain, cerebral hemorrhage, and all kinds of intracranial growths, whether true tumors or granulomatous, may be followed by diabetes insipidus. Cerebral tumors probably head the list of the gross lesions associated with this form of diabetes, but in many cases cerebral syphilis is present, usually in the form of a basilar syphilitic meningitis. It has been assumed that basilar meningitis and other lesions at the base of the brain may cause polyuria by irritation of the cerebellum, pons or medulla because polyuria has been produced experimentally by injury to these parts. There is another explanation, however, of the manner in which organic lesions at the base of the brain may cause polyuria, namely, by involvement of the posterior part of the hypophysis. Instructive instances of diabetes insipidus associated with lesions of this part of the hypophysis have been recorded recently. Thus Goldzieher[1] records a case in which in addition to syphilitic meningitis, there was a gummatous formation in the region of the hypophysis with atrophy of the posterior part. Berblinger[2] describes an instance of dystrophia adiposogenitalis with polyuria in which there was found a sarcoma of the frontal part of the brain infiltrating the posterior part of the hypophysis. Simmonds[3] reports diabetes insipidus in four of seven cases of metastatic tumor in the pars posterior and infundibulum. Three of Simmonds' four cases were secondary carcinoma, the primary tumor being in the breast. Other instances could be cited, but enough has been said to indicate that there is some connection between diabetes insipidus and lesions in and about the hypophysis, especially the posterior part. Whether the polyuria in these cases is due to disturbance in functioning, or complete destruction of certain parts, of the hypophysis, and if so how, are questions for the future which can be solved only by a careful study of as many cases of diabetes insipidus as possible. It would seem to be of special interest to examine closely into the condition of the hypophysis in the so-called idiopathic form of diabetes insipidus.

SOME FACTS ABOUT RAT PLAGUE

In view of the admitted importance of the rat in the transmission of plague, the study of the distribution of this disease among the rodents has become quite as necessary from the point of view of preventive hygiene as is the management of the human cases when they arise. A decade or two ago the investigation of the epidemiology of disease among such lowly animals would have seemed a gratuitous inquiry, interesting perhaps from a purely scientific aspect, but without any direct application to the problems of public health. Modern knowledge has, however, taught the unsuspected significance of work along these lines. The expeditions for the discovery of plague-infected rats have become important features in preventive medicine. The activities of the United States Public Health Service in this direction have become familiar to readers of THE JOURNAL. Some phases of the ban against the rat in England are presented in a recently published report to the Local Government Board[4] on an inquiry into rat plague in East Anglia during the period from July to October, 1911. The magnitude of a single campaign of this sort intended to ascertain the limits of infection of an area which had previously been found to be infected is shown by some of the statistics. During four months 15,332 rats were examined for plague infection — a task itself of no mean proportions. As a result of the dissection of this large number of rodents at the Ipswich laboratory, thirty-five of the rats were found to be plague infected.

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[2] Heffter, A., and Rubner, M.: Gutachten der königlichen wissenschaftlichen Deputation für das Medizinalwesen vom 8 Juli 1914 betreffend die Verwendung von Zimtsaure zur Nahrungsmittelkonservierung, Vrtlischr. f. gerichtl. Med., 1914, xlviii, 308.

[1] Goldzieher: Verhandl. d. deutsch. path. Gesellsch., 1913, xvi, 272.

[2] Berblinger: Verhandl. d. deutsch. path. Gesellsch., 1913, xvi, 281.

[3] Simmonds, M.: München. med. Wchnschr., 1914, lxi, 180; abstr., THE JOURNAL, March 7, 1914, p. 818.

[4] Eastwood, A., and Griffith, F.: Report to the Local Government Board on an Inquiry into Rat Plague in East Anglia During the *Period* July-October, 1911, *Jour. Hyg.*, 1914, xiv, 286. Macalister, G. H., and Brooks, R. St. J.: Report *on the* Post-Mortem Examination of Rats at Ipswich, ibid., p. 316.

Twenty-seven premises were found to harbor plague-infected rats. The places were all within an area previously pronounced to be infected. As a matter of incidental interest pointing to the difficulties in such work, it may be noted that at certain periods the cases could not be diagnosed on post-mortem examination alone with any certainty. In the earlier season of the epizootic, infected rats sometimes presented atypical appearances. It was found that features suggestive of plague infection may be simulated by rats infected with trypanosomiasis or with bacilli of the Gaertner group. Fallacies in direct microscopic diagnosis are presented by certain intestinal and putrefactive organisms. The most valuable diagnostic points are the presence of subcutaneous congestion, pleural effusion, and necrotic changes in the liver. These should be considered collectively. An economic as well as hygienic advantage in the antirat crusade is shown by the experience of this English investigation, like others that have previously been conducted. The rat destruction, which had been maintained by local enterprise for somewhat more than a year, had, in many localities, appreciably diminished the rat population.

THE HYGIENE OF GAS LIGHTING

When an innovation in the industrial world tends to replace some older, long-established practice, one frequently sees a vigorous defensive response on the part of the supporters of the process that is being outdistanced. This reaction usually redounds to the advantage of all concerned. It functions as a stimulus to self-satisfied interests to become rejuvenated to meet new conditions of commerce, it spurs the losers to renewed effort to regain lost prestige, and the end-result not infrequently is the discovery or invention of novelties which improve the conditions of existence and reduce the cost of living. As a specific instance of such commercial rivalry, which is widely reflected in the affairs of everyday life, the competition between gas and electricity may be mentioned. Usually the determining factor in the use of two sources of energy for heat or light effects is a purely economic one. Electric lighting, when once perfected to a stage where it became an efficient and reasonably economical process, threatened to supplant gas lighting within doors for purely hygienic reasons. The pollution of the air by the products of incomplete or complete combustion of the illuminating material is avoided by the electric light. Large quantities of hot combustible gases are not formed and need not be removed. The contrast in the conditions that may be brought about by the two systems is too obvious to require a detailed description. The defenders of the modern systems of illumination with gas have advanced certain considerations quite independent of the relative intensity and quality of the light produced. They have entered the hygienic field with the claim that the great production of heat in gas-light fixtures brings about a natural ventilation effect through the air currents it produces, so that the products of combustion, notably carbon dioxid, are never allowed to accumulate unduly in the atmosphere, and an excessive rise in temperature is also prevented by the movement of the air. To this has been added the statement that, with gas lighting, the micro-organisms of the air in the rooms involved are destroyed by the flame itself and likewise by the traces of combustion products like sulphurous acid which exhibit an antiseptic action. The allegations in respect to the effect of gas lighting on the bacterial content of the air have been investigated in the Hygienic Institute of the University at Munich by Ahlborn.[1] In a room of 57 cubic meters' capacity under uniform artificial circulation of the atmosphere, the content of bacteria in a unit volume of air decreased 24 per cent. in one hour. Under precisely comparable conditions, including the presence of three large gas-light flames with open globes, the content of micro-organisms decreased 40 per cent. in the same period. This increased destruction of bacteria is undoubtedly attributable to their burning up in contact with the incandescent surfaces or their destruction by the heated gases that are produced. The point for emphasis, however, is the fact that such differences in bacterial content, amounting at best to only 16 per cent., are too small to possess any serious significance from the point of view of practical hygiene. The argument for the superiority of gas lighting in this respect can scarcely be maintained.

DIET AND THE IODIN CONTENT OF THE THYROID GLANDS

Attention has recently been directed to the seasonal variation in the iodin content of the thyroid glands;[2] and the bearing of this on the standardization of commercial thyroid products, and perhaps also on their dosage, has been brought to notice. Other factors than the unexplained ones associated with the seasons and the species are known to enter into the regulation of the storage of iodin in the glands. It is now well known that administration of iodids leads to an augmentation of the gland halogen content. In an illustrative case the continued daily feeding of small quantities of sodium iodid for six or seven weeks has been found to double the iodin content of a sheep's thyroid. Not only extraneous iodin-yielding salts administered as drugs, but likewise iodin present as a constituent of the diet can be stored in the thyroid gland. If further evidence of this were required, it could be found in a report of analyses of sheep's thyroids from islands of the Orkney group, which lies to the north of Scotland.[3] The native animals run wild there in many places, and during the winter subsist to a considerable extent on seaweeds. The latter are notable as sources of iodin in organic combination.[4] In the Orkney sheep thyroids examined by Hunter and Simpson, the concentration of iodin ranged from 0.42 to 1.05 per cent. of the dry substance, the average for the group analyzed being as high as 0.7 per cent. in contrast with comparable American data which range decidedly lower. So long as the iodin content of the thyroid remains as the index to therapeutic dosage, such features deserve to be borne in mind.

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[1] Ahlborn, K.: Die desinfizierende Wirkung der Gasbeleuchtung auf Zimmerluft, Arch f. Hyg., 1914, lxxxiii, 155.

[2] Seidell, A., and Fenger, F.: Bull. 96, U. S. P. H. S., 1914. Seasonal Variation in Composition of Thyroid Gland, editorial, The Journal A. M. A., Jan. 9, 1915, p. 155.

[3] Hunter, A., and Simpson, S.: The Influence of a Diet of Marine Algae upon the Iodine Content of Sheep's Thyroid, Jour. Biol. Chem., 1915, xx, 119.

[4] Cameron, A. T.: Jour. Biol. Chem., 1914, xviii, 335. The Distribution of Iodin, editorial, *The Journal* A. M. A., Nov. 28, 1914, p. 1957.

ANCYLOSTOMA, NOT ANKYLOSTOMA

The International Commission on Zoological Nomenclature has recently decided on generic names for a number of the nematode and gordiacea worms.[1] Two genera of hookworms are concerned of special importance in medicine. The Old World hookworm has long been known under a generic name, indicating the marked characteristic of the parasite, the hook-like curvature of the oral end of the body. This name, which is derived from the Greek ἀγκύλος, hooked, and στόμα, mouth, has been spelled in a bewildering variety of ways, about twelve in all, according to Stiles, among which we have ankylostoma, anchylostoma, ankylostomum, ancylostoma and ancylostomum. The committee has selected the form "ancylostoma" which, it suggests, should now be regarded as official. This spelling has not been used in medicine, so far as we know; "ankylostoma" (or "ankylostomum"), which represents most closely in spelling and pronunciation the Greek words from which it is derived, is the form usually preferred in medical dictionaries. We do not know what considerations induced the commission to choose the spelling "ancylostoma," which apparently also involves a change in pronunciation, but possibly the choice will illustrate the proverb, "You may lead a horse to water but you cannot make him drink." The authority of the commission might well have paramount influence in the naming of a newly discovered species or genus; but, however desirable uniformity in scientific nomenclature may be, it is very doubtful if even an international commission can so radically change established spelling and pronunciation. The commission has adopted the generic name "Necator" for the New World hookworm. Usage has been divided here, and this decision, which gives the weight of authority to one of the two names in general use, will, we believe, meet general approval.

THE BLOOD IN STARVATION

The physiologic conditions which arise in starvation are of particular interest to the physician, because there are not a few diseased states of the organism in which complete or partial inanition inevitably arises. Furthermore, the reaction of the body to a situation created by a lack of adequate food illustrates the way in which the organism meets physiologic emergencies. It has long been known that the various organs and tissues do not suffer to an equal degree in starvation. In comparing the loss of weight of the individual organs, for instance, the nervous system shows only a small depletion as compared with the other organs. In a long period of inanition we recall a recorded instance in which the loss of adipose tissue was estimated at 97 per cent.; of liver, at over 50 per cent.; of muscles, at 30 per cent.; whereas the heart and nervous system each lost only about 3 per cent. of their estimated initial weight. Such facts must not be interpreted to mean that the metabolism of the heart and the nervous system is comparably slight during starvation. It is far more likely that one organ may derive its nutriment during starvation from other tissues and thus exist at their expense. It might be expected that the circulating blood, which acts as an intermediator between the various parts of the body, would also preserve its integrity in this way as long as possible, so as to permit the performance of the normal functions as efficiently as the lack of ingested nutriment would allow. There are numerous records of the condition of the blood during inanition, in the case not only of experimental animals, but also in fasting man. These have not invariably been associated with any disease responsible for the consequences; for fasting has been undertaken from the most diverse motives, "religious, scientific, suicidal, personal aggrandizement, as a fad, and without motive, the result of diseased body or mind." Few authentic instances in which the blood has actually been studied in inanition cover so long a period of fasting in man as the case reported by Ash.[1] The subject was Levanzin of Malta, who fasted for thirty-one days under the supervision of Dr. Benedict, director of the Carnegie Nutrition Laboratory in Boston. The outcome, so far as the changes in the blood are concerned, was essentially negative. The hemoglobin appeared to be particularly resistant, the percentage on the last day being within 2 per cent. of the highest estimation on the day before the fast began. The moderate fluctuations in concentration of solids call for no special comment. As for the cellular elements, there was a decided rise in the polymorphoneutrophils in the early days of the fast. This, in fact, was the only prominent feature of the successive blood pictures. Ash attempts, though with extreme reserve, to account for this change by the suggestion that the leukocytes are the most sensitive of the blood-cells to alterations in body conditions. They seem alert to rush to the defense of the organism; and it may be that in the early period of starvation unusual conditions arise to call forth a mobilization of these neutrophil cells. As Ash remarks, the results of the blood examinations in prolonged hunger in man are conspicuous rather from the absence than from the presence of striking alterations in the blood picture. The blood as a whole is distinctly resistant to effects of uncomplicated inanition, without deleterious consequences, even in periods so long as thirty-one days. The advantage of this unimpairment of the circulating medium with its oxygen-carrying power and other fundamental functions is obvious. Death by starvation is, as a rule, not the result of death of all the organs of the body at once; but it depends more likely on the ultimate disturbance in the nutrition of a few.

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[1] Opinions Rendered by the International Commission on Zoological Nomenclature, Opinion 66, Pub. 2359, Smithsonian Institution, Washington, February, 1915.

[1] Ash, J. E.: The Blood in Inanition, Arch. Int. Med., July, 1914, p. 8.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Smallpox Inspectors Relieved.—The special antismallpox campaign in Montgomery has come to an end and the ten extra inspectors added to the force were relieved of duty. Commissioner Brassell says there were fewer cases during 1915 than during the same period of 1914. Many of the victims removed to the detention camp were from other places. Thirty cases were handled at the detention camp during the week of March 10.

COLORADO

Personal.—Dr. Edward F. Lake, Denver, has been obliged to discontinue practice on account of malignant disease of the tongue.——Dr. Alfred I. Hayes, Victor, was seriously injured by the overturning of his automobile, March 3.

Solly Tuberculosis Society.—During the year that has elapsed since the organization of the Solly Tuberculosis Society, nine meetings have been held at which lung surgery, the effects of the climate on tuberculosis, tuberculin as a diagnostic and therapeutic measure, surgery in tuberculosis, tuberculosis in children, laryngeal tuberculosis, artificial pneumothorax, the development of the sanatorium idea and the Roentgen ray as a diagnostic help, have been presented and discussed.

CONNECTICUT

Stream Pollution.—In 1913 the legislature directed the State Board of Health to make a survey and report on stream pollution in the state. The report has been made to the present legislature. It gives facts regarding sewerage systems on the watersheds of all rivers of appreciable size, together with information about the discharge of factory wastes into the streams. Analyses of samples of river water collected at designated points show that with few exceptions all the streams give evidence of pollution. The board has prepared and has introduced bills for the correction of this pollution.

FLORIDA

Bill for Epileptic Colony.—Dr. Daniel C. Main, Welaka, and others have prepared a bill to be presented to the legislature authorizing the appointment of a commission to select a suitable site in the state for the use of a colony for epileptics and feeble-minded persons. For this purpose an appropriation of $50,000 is asked.

Personal.—Brig. Gen. Henry Bacon, M. C., Florida N. G., Jacksonville, who has been in the military service of the state since 1889, has been placed on the retired list at his own request, after serving nearly twenty-five years as colonel and surgeon-general of the state.——Dr. Graham E. Henson has succeeded Dr. Mark B. Herlong as city physician of Jacksonville.

Hospital Notes.—The board of trade of Quincy and others are interested in the plan to organize a company with a capital stock of $5,000 to $10,000 to erect and equip a hospital in that place.——The Hospital Association of Ft. Myers has decided to borrow the money necessary to get the hospital building ready for use.——The DeLand City Hospital has already been opened and a list of 200 guarantors is being secured to insure the permanency of the enterprise.——Plans have been awarded for the building of the new Morton B. Plant Endowed Hospital, Clearwater.

State Health Board Exhibit.—The State Board of Health has at last realized its plan of preparing a campaign of education of the people of Florida by illustrating in graphic form the work which it has been doing for many years. The exhibit consists largely of panels illustrating health conservation, malaria, typhoid fever, smallpox and vaccination, the work and care of indigent crippled children, communicable diseases, hookworm, campaign against tuberculosis, the care, feeding and dressing of babies, rabies, cancer and pellagra, etc. The exhibit has thus far been shown in Jacksonville, Tampa, Sanford, Orlando, Lakeland, Palatka, Ocala, Pensacola, and is now in Tallahassee.

GEORGIA

Surgeons' Club to Meet in Augusta.—The Georgia Surgeons' Club has accepted an invitation extended by Augusta surgeons, to hold its next annual meeting in Augusta, in February, 1916.

Hospital Work Instruction.—The State Board of Health is giving a course of instruction to prospective candidates for the position of district health commissioner. This course commenced March 16 and will continue for six weeks.

Personal.—Dr. Henry M. Fullilove, Athens, has been elected state convict physician.——Dr. Alfred S. Oliver, Elberton, was acquitted March 11 on a charge of having murdered Dr. James P. Thompson, Elberton.——Dr. Robert L. Fox, Brunswick, was shot and slightly wounded by Monroe Phillips, March 7.——Dr. William D. Jennings, contagious disease physician of the Department of Public Health of Augusta, has resigned to accept the position of police and fire surgeon of the city.——Dr. George S. Morse has been appointed medical inspector of the negro schools of Atlanta, succeeding Dr. Hilliard D. Canady, Jr.——Dr. Obe C. Gibson, Macon, has recovered from his recent illness and has resumed his work.

Hospital Notes.—Macon has voted to issue bonds for $150,000 for the Macon Hospital, by a vote of 1,092 to 27.——Quarters for the Cooperative Hospital, Atlanta, have been obtained at 201 Capitol Avenue and for the Hospital for Women and Children at 33 Irwin Street. The Cooperative Hospital opened March 16, but the date for the opening of the Hospital for Women and Children is not yet announced.——The board of county commissioners of Tift County has agreed to appropriate $50 a month toward the maintenance of a hospital at Tifton.——Among the needed improvements at Grady Hospital, Atlanta, are the establishment of a psychopathic ward, a social service department and a thoroughly equipped clinic.——Plans are being made for a new municipal hospital at Rome.

ILLINOIS

Sanatorium for Negroes.—Drs. Arthur D. and Isabell M. Barnette Butler have founded a sanatorium in Evanston for the care of colored patients.

Many in County Hospital.—Cook County Hospital, with a capacity for 2,200, has at present 2,016 patients under treatment. The warden reports that all cases excepting those of emergency are investigated by two members of the house staff before admission and that persons who can afford to pay are sent to other hospitals.

Municipal Sanatorium for Rock Island.—The medical commission composed of Drs. Joseph De Silva, Bernard J. Lachner and Louis Ostrom, Jr., named to have charge of the Rock Island Municipal Tuberculosis Sanatorium, has appointed an architect to prepare plans for the institution. There is now in hand more than $12,000 for the sanatorium and this will be increased by more than one-half by the taxes now being collected.

Chicago

Postgraduate Schools Unite.—The union of the Post Graduate Medical School and Hospital, the Chicago Polyclinic and Hospital and the Henrotin Memorial Hospital, has been announced.

Leper in Chicago.—Dr. Edward T. Kennedy of the staff of the Robert Burns Hospital discovered a case of leprosy, March 5. The patient has lived in Chicago eighteen years and therefore cannot be deported.

Chicago Nurses Start for Russia.—Five nurses of Chicago left for Russia, March 17, and sailed from New York, March 20. Up to the present time, seventeen nurses have gone from Chicago to work with the American Red Cross in Europe.

New Field Hospital.—The organization of Field Hospital No. 2 has been authorized by the Adjutant General and Major Gustavus M. Blech, M. C., Ill. N. G., has been assigned to its command. Major Blech has been succeeded as executive officer of Field Hospital No. 1, by Captain Frederick O. Fredrickson, M. C.

Difficulties in Enforcing Ordinances.—In February, 1912, the health department sued the Chicago City Railway Co. for bad ventilation in one type of cars. The city established its case but the court refused to impose the penalty provided by the ordinance and dismissed the complaint. The case was carried to the court of appeals, which has just decided in favor of the city. The *Bulletin* of the department calls attention to this as an illustration of the difficulty the department has in enforcing important health ordinances. It is said that practically every attempt to control any important corporation or group of industries has to be fought through to the supreme court, but the department has not lost a single important suit of this character in the past four years.

KANSAS

Survey of Milk Supply of State.—A milk survey covering the supply of all towns in the state over 2,000 was begun in January. During that month 748 inspections were made and 75 towns and cities were visited. Thirteen cities with a population of 10,000 or over were included in January. Out of 393 samples of milk inspected 34 were found to be below standard. Out of 34 samples of cream, 6 were found below standard. From these figures it is estimated that 8.65 per cent. of the milk sold in the larger cities is below standard. The report covering the state is expected to be the most complete survey of the milk supply of a state yet made.

Hospital Notes.—Douglas County Medical Association has entered on a work which, if carried out as proposed, will accumulate about $8,000 a year toward the building of a county hospital. This plan is to have all the county work turned over to the association, which will be responsible for all treatment and will also guarantee that the usual fees and charges will be devoted to the accumulative fund ultimately to be used in the erection of a county hospital.——The establishment of the Salina Clinic was announced February 22. It will occupy a suite of rooms in the Nesmith Building and the staff includes Drs. Edgar J. Lutz, Louis O. Nordstrom, John W. Neptune and William E. Mowery.

KENTUCKY

Hospital Opens Clinical Research Laboratory.—The medical staff of the Louisville Jewish Hospital has opened a clinical research laboratory on the first floor of the main building. The laboratory is under the charge of Dr. Leon K. Baldauf as director.

Rabies.—According to the *Kentucky Medical Journal* for March rabies is unusually prevalent in the state. Four persons have died of the disease in the past three months—two in Trigg County, one in Owen and one in Caldwell. Muzzling of dogs and a relentless war against homeless canines are recommended.

Personal.—Misses Loraine Sigmier and Alice Hayden, assistants under Dr. Lillian H. South, Bowling Green, in the state laboratory since its opening, have been appointed by the Rockefeller commission to have charge of the public health exhibit and demonstrations at the Panama exposition. The exhibit is to be found in the Palace of Education.

Hazelwood Soon to Reopen.—It is announced by the Louisville Antituberculosis Association that the Hazelwood Sanatorium will be reopened April 1. The association will be assisted in the medical work by a medical advisory board of twenty physicians of which Dr. Ap Morgan Vance, Louisville, is chairman. There will be no residence requirements for admission, but patients will be accepted from any part of Kentucky, limited only by the capacity of the institution.

MARYLAND

Health Exhibit for Negroes.—A health exhibit having as its chief purpose the arousing of negroes in the fight against tuberculosis among their own people, was held March 24 to 26, by the Maryland Colored Health Association, under the auspices of the Committee on Public Instruction of the Medical and Chirurgical Faculty of Maryland.

Art Gift to Johns Hopkins.—The Jonathan Hutchinson collection of original drawings, colored plates and photographs, illustrating clinical work in medicine and surgery and constituting one of the rarest collections known to physicians, secured by Sir William Osler, has been presented to Johns Hopkins Medical School by William A. Marburg.

Society Meets at Urologic Institute.—A meeting of the Baltimore County Medical Society was held March 17, at the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, and was entertained at luncheon by Dr. Hugh H. Young, director of the institute. Later the members were escorted through the new building and were present at a clinic held by Dr. Young, who was assisted by Dr. John T. Geraghty, Baltimore.

County Sanitation Committee Organized.—The committee on sanitation of the Confederated Civic Association of Baltimore County organized March 19. Dr. J. Carroll Monmonier, Jr., Catonsville, was elected chairman, and chairmen of the subcommittees were elected as follows: Dr. Albert L. Wilkinson, Raspeburg, public instruction; Dr. William J. Todd, Mt. Washington, sewerage and water supply, and Dr. Fred V. Beitler, Halethorp, sanitary legislation.

Personal.—In recognition of his long and faithful service at the Baltimore Eye, Ear and Throat Hospital, Dr. Jacob H. Hartman, one of the two living founders of the institution, was given a banquet recently at the Hotel Rennert, at which a handsome silver service was presented him by the staff of the hospital.——Dr. Clapham P. King, a Maryland surgeon who is with the Red Cross forces in Serbia, is convalescing after an attack of typhus.

MASSACHUSETTS

Personal.—Dr. Frank B. Mallory has been appointed consulting pathologist to the Boston Dispensary.——Dr. Charles P. Hooker, Springfield, after thirty years of service, has resigned as physician to the Hampden County jail.

Cutter Lecture.—The Cutter Lecture on preventive medicine given annually under a bequest of Dr. John Clarence Cutter, will be delivered on April 2, at Harvard Medical School, by Surgeon Joseph Goldberger, U. S. P. H. S., on "Diet and Pellagra."

Dilatory Municipalities Warned.—Notice has been served on thirty cities and towns of Massachusetts by Dr. Allen A. McLaughlin, state commissioner of health, that they must at once comply with the law which provides that cities and towns of 10,000 population and over shall establish and maintain tuberculosis dispensaries satisfactory to the State Board of Health.

MICHIGAN

Leper Dead.—Sears Goldstein, a leper of Benton Harbor, who has been in the care of Berrien County for eighteen months, died February 22.

Business Bureau Organized by Physicians.—The Detroit Physicians' Business Bureau has been organized as an adjunct of the Wayne County Medical Association. The board of control is composed of Drs. James E. Davis, Raymond L. Clark, Howard W. Peirce, Walter D. Ford and William H. Diebel.

Personal.—Dr. J. Walter Vaughan has succeeded Dr. Charles H. Oakman as a member of the Detroit Board of Health.——Dr. Robert H. Haskell, Ann Arbor, has been appointed superintendent of the Ionia City Hospital, succeeding Dr. Oscar R. Long, deceased.——The residence of Dr. Carl A. Mitchell, Benton Harbor, was damaged by fire, March 11, to the extent of $2,000.

New Hospital for Detroit.—Drs. J. N. E. Taylor and Frank J. Sladen have recently visited Johns Hopkins Hospital to study hospital arrangements and consult with Dr. Winford H. Smith, Baltimore. They came as representatives of Mr. Henry Ford who has expressed an intention of building a general hospital in Detroit. It is proposed to have Drs. Harry W. Plaggemeyer, Carl R. Meloy and Ernest K. Cullen, all of Detroit, on the staff of the proposed hospital.

MINNESOTA

Inspection of Food Handlers.—It is reported that the Minnesota Public Health Association has endorsed a plan for the physical examination of all food handlers, to eliminate those suffering from infectious diseases. This would include food factory hands, cooks, waiters, bakers and even cooks in the home. A bill is now before the legislature to license professional cooks.

MISSISSIPPI

Personal.—Dr. Walter Crawford, Hattiesburg, has arranged for the enlargement of the South Mississippi Infirmary by the addition of ten rooms.——Dr. Willis Walley, chief sanitary inspector of the State Board of Health, charged with having tried to influence the granting of a temporary license to an applicant who had failed on examination, was exonerated at a meeting of the board, March 9.

MISSOURI

St. Louis

Tuberculosis Exhibit Opened.—The St. Louis Society for the Relief and Prevention of Tuberculosis has opened an exhibit at 521 Olive Street. The exhibit includes screens showing the housing conditions in the congested district, the manner in which tuberculosis is contracted and spread, the method of its treatment by the corps of visiting nurses of the society and, in addition, each evening, a short talk is given illustrated by stereopticon views.

Fatherless Children in St. Louis.—A report issued by the St. Louis School of Social Economy presents a study of illegitimacy in St. Louis by George B. Mangold and Louis R. Essex. Missouri has no bastardy law and the whole burden of expense of illegitimacy falls on the mother. The age of consent is 15. It was found that St. Louis has a greater percentage of illegitimate births than any other city in the United States except Washington, D. C. As in the case of Washington, the large negro population is largely responsible for this. Over 20 per cent. of mothers are under 18 and about 58 per cent. under 21, with 42 per cent. over 21. The illegitimate children number 750 to 775 each year. The report recommends that the age of consent be raised to 18, that a bastardy law be enacted, that counties in which the mothers reside may be charged with the expense of confinement elsewhere, that women with their children may be returned to the state of their residence and that maternity homes be subjected to state supervision. The report also recommends further study of the subject.

University to Dedicate New Buildings.—The dedicatory exercises of the new buildings of the Washington University Medical School will be held April 29 and 30. The exercises include, in addition to the various entertainments, addresses by the dean of the medical school, Dr. Eugene Lindsay Opie; by Dr. William Henry Welch, Baltimore, of Johns Hopkins University; President Abbott Lawrence Lowell of Harvard University; President Henry Smith Pritchett of the Carnegie Foundation for the Advancement of Teaching; President George Edgar Vincent of the University of Minnesota; Drs. William Townsend Porter, Robert James Perry, Fred Towsley Murphy and George Dock of Washington University, Abraham Flexner, assistant secretary of the general education board, and Major-General William Crawford Gorgas, surgeon-general U. S. Army. On April 28, exercises in commemoration of Dr. William Beaumont will be held, including the presentation of the manuscripts and letters of William Beaumont to Washington University Medical School, the acceptance of the gift by the chancellor of the university, and addresses on "William Beaumont as a Practitioner," by Dr. Frank J. Lutz, and "William Beaumont as an Investigator," by Dr. Joseph Erlanger.

NEW YORK

Personal.—Dr. Henry A. Bray, assistant superintendent of the State Hospital, Raybrook, who has been ill for two weeks, is reported to be convalescent.——The residence of Dr. Frank B. Spengler, Baldwinsville, was destroyed by fire, March 13.

The Coroner's Bill.—The Cromwell Bill, abolishing the offices of coroner in New York County and providing for the appointment of a medical examiner with assistants of his own choosing, has been favorably reported by the senate cities committee.

Fraternity Meeting.—The annual meeting of the Syracuse University Chapter of the Alpha Omega Alpha Fraternity was held March 18. A banquet was served at the Onandaga Hotel, at which the guest of honor was Dr. Walter B. Cannon of Harvard University and in the evening Dr. Cannon delivered an address on "The Psychology of Martial Emotions."

Sanatorium Notes.—The city council of Buffalo has approved the action of the board of aldermen in requesting the mayor, comptroller and treasurer to certify to certificates of indebtedness in the J. N. Adam Hospital amounting to $22,490.36.——The supervisors of Fulton County have appointed a committee to investigate the tuberculosis hospital at Summit View. It is reported that they have accommodations for thirty patients, that only twenty are being cared for and that six on the waiting list have been refused admission.

The Jones-Tallett Bill.—This measure, designed to make the vaccination of schoolchildren compulsory only when there is a smallpox epidemic, except in cities of the first and second class, has been passed by the senate, in spite of a great deal of opposition on the part of many members of the medical profession. The Medical Society of the County of Kings, at its meeting on February 16, adopted resolutions declaring itself not in accord with the position taken by the State Department of Health, and unalterably opposed to the Tallett-Jones Bill or any bill which would, in any manner, lessen the protection by vaccination against smallpox, provided by existing law. The public health committee of the New York Academy of Medicine also passed resolutions opposing the bill in so far as it applied to New York City for the reason that present conditions in regard to vaccination were entirely satisfactory in that city and therefore should not be changed.

Annual Report of State Health Department.—Dr. Hermann M. Biggs, state commissioner of health, has transmitted the thirty-fifth annual report of the State Department of Health to Governor Whitman. The report is mainly occupied in pointing out that the department has set for itself the task of saving 25,000 lives during the next five years, that 10,000 lives might be saved annually, and that 100,000 cases of serious illness could be prevented, together with all the economic loss involved (some $30,000,000, Dr. Biggs calculates), if the state will grant the appropriation of $410,000 asked for. Dr. Biggs proposes to initiate a campaign of education for the purpose of reducing the death rate among those over 45 years of age, due to diseases of the blood vessels, heart, kidneys and brain. The increased appropriation has been asked for the purpose of carrying out the campaign of education, extending laboratory facilities for diagnosis and treatment of disease, and safeguarding the people against preventable diseases. In closing his letter Dr. Biggs says that it remains for the legislature and the executive to decide how far the citizens of the state shall have the benefits in prolonged and effective life which science and experience can give them.

New York City

Personal.—Dr. Archibald McNeil has resigned from the department of health as assistant director of laboratories and chief of the division of diagnosis, to become director of the National Pathological Laboratory.——Dr. Herbert J. Knapp of Brooklyn has sailed for Liverpool.

Movies to Teach Antifumigation.—In view of the discontinuance of formaldehyd fumigation in all of the boroughs except Brooklyn it has seemed wise to the health commissioner to explain the step by the aid of moving-picture films. The films in preparation contrast the inefficient methods of fumigation and those that are efficient and show why the old method of fumigation failed of its object.

Bathing in New York Waters Restricted.—The department of health has extended the limits within which open bathing establishments are forbidden in the waters around the city. There has been considerable protest against this measure by those owning bathing pavilions in this area. It is pointed out by the department that the step is necessary in view of the fact that 700,000,000 gallons of sewage is poured daily into New York Bay and the adjacent waters.

Cornell Professor Accepts Appointment as Biochemist.—John R. Murlin, Ph.D., assistant professor of physiology in Cornell University Medical College, has been granted a leave of absence to accept a temporary appointment as biochemist at the Pellagra Hospital of the U. S. Public Health Service, Spartanburg, S. C.——Dr. Andrew Hunter, who recently resigned as biochemist at this college, has accepted the professorship of pathological chemistry in Toronto University.

Activities of the Public Health Committee of the Academy of Medicine.—This committee has submitted a summary of its work during the months of January and February which shows that at the request of the department of education the committee has prepared a report on the teacher-mother problem in relation to health. The opinion expressed is that no woman should be permitted to teach after the sixth month of her pregnancy; that the ability of a woman to teach during this time is an individual question; that the average time of return to school work after confinement should not be less than three months; and that while healthy children might interfere very little with a teacher's work, the care of a delicate child might totally unfit her for her duties at school.——The committee has again considered the question of transfer of quarantine from the state to federal control and the past position of the Academy of Medicine has been submitted to the governor with the recommendation that as the term of the present officer of the port is expiring, the governor take immediate steps toward ceding the quarantine functions to the U. S. Public Health Service.——At the request of the department of health a report has been submitted on the relation of seating and lighting facilities in the public schools to the incidence of myopia in schoolchildren, which shows that conditions in this respect are unsatisfactory and it is recommended that a study of this question be made by the department of health and the department of education.

NORTH CAROLINA

Personal.—Dr. Watson S. Rankin, secretary of the State Board of Health, has been elected president of the Raleigh Y. M. C. A.——Dr. Frank H. Russell, Wilmington, who has been ill in a hospital in Baltimore, is reported to be improving.——Dr. George W. Long, Graham, is reported to be seriously ill in a hospital in Baltimore.

OHIO

Crile Discusses War.—Dr. George W. Crile, Cleveland, who recently returned after a tour of duty in the American Ambulance Hospital, Paris, gave an illustrated lecture in the Amasa Stone Memorial Chapel, March 17, on "Education and War."

Sanatorium Almost Filled.—The Springfield Lake Sanatorium for Tuberculosis, which was opened only a month ago with a capacity for 92 patients, has already 87 patients enrolled. When fully equipped, the institution will be able to care for 150 patients.

Free Clinic for Children at Dayton.—St. Elizabeth's Hospital, Dayton, has opened a free clinic for crippled and deformed children in connection with its department of orthopedic surgery. The clinic will be opened every Wednesday afternoon from 3 to 4 o'clock.

Addresses at State Society Meeting.—The address on medicine at the annual meeting of the Ohio State Medical Association, at Cincinnati, May 4 to 6, will be delivered by Dr. George Dock of Washington University, St. Louis, and that on surgery by Dr. Charles L. Scudder of Harvard Medical School.

Personal.—Dr. Arlington C. Holland, Columbus, has resigned as state registrar of vital statistics to take effect April 1.——Dr. Edward R. Henning, Bellefontaine, has been appointed local surgeon for the Big Four System, succeeding the late Dr. J. S. Deemy.——Dr. John W. McKemy, Dayton, has been elected vice-president of the Ohio Coroners' Association.——Dr. Lewis R. Mundhenk, Middletown, is under treatment in the Miami Valley Hospital, Dayton, for gangrene of the foot.——Dr. Tunison T. Rosendale, Fostoria, has been elected president of the Keasey Pulley Company.——Dr. Frank C. Anderson, assistant physician at the Ohio State Sanatorium, Mt. Vernon, has resigned and will be succeeded by Dr. Jay D. Thomas, Catawba.——Dr. James R. Tillotson has been elected chairman of the executive committee of the Delphos Public Health League.

Trachoma in Youngstown.—In 1914 trachoma was discovered among the employees of some of the steel mills in Youngstown. Surgeon J. W. Schereschewsky of the Public Health Service was detailed to make an investigation and reported in March, 1914. This report covered not only the incidence of trachoma among the steel workers but also covered the sanitary condition of the town and the hygienic conditions surrounding the workers in their homes and boarding places. Immediately after this, the Youngstown Sheet and Tube Company, the principal industry, arranged to open a trachoma hospital and the services of a registered nurse were secured, one being assigned from the Blind Commission of the State of Ohio. All employees found afflicted were treated in the hospital and a house to house survey of the village of East Youngstown was made. Placards warning the inhabitants of the town of the dangers of eye diseases were posted, living conditions were investigated and measures taken to improve the situation generally. From Feb. 9 to Aug. 31, 1914, 242 patients were treated in the hospital, 187 of these being employees of the company, in all 13,183 treatments were given. The hospital is now closed but the nurse and the eye specialist employed by the company continue to take care of cases of trachoma. Among the other measures adopted to improve conditions are the employment of a surgeon on full time, with an assistant, by the company, a physical examination of all persons applying for work, establishing a health board, the improvement of the water supply, installation of a sewerage system and the abolition of insanitary privies, a plan of garbage collection, regulation of overcrowding of lodging and boarding houses and the pavement of streets. A physician has been appointed as village health officer.

OREGON

Antivaccinationists in Oregon.—Under date of March 13, it is reported that a campaign against vaccination has been started in Oregon. A meeting was held in Portland, March 12, at which it is said "Dr." S. L. Shanklin of Chicago and "Dr." E. R. (Painless) Parker participated. Mrs. Lora C. Little was chairman of the meeting and she proposes to make a lecture tour of the state.

PENNSYLVANIA

Anthrax at Chester.—A case of anthrax in a young girl worker in a brush factory has been found at Chester. The disease began as a simple lesion on the face and advanced rapidly. The diagnosis was confirmed by City Bacteriologist Gary. The patient was isolated.

Cattle Disease in Chester County.—The outbreak of the foot and mouth disease in Chester County has resulted in unusual precaution near Kimberton, where forty-eight cows were ordered killed by the State Live Stock Commission. Another herd of twenty-eight cows were slaughtered, March 17, and the entire neighborhood within a radius of 10 miles has been quarantined.

Personal.—Dr. Daniel W. Jefferis, Chester, was the guest of honor at a banquet given by the Delaware County Medical Society, March 11, in celebration of the semicentennial of Dr. Jefferis' entry into the practice of medicine.——Dr. Clayton D. Fretz, Sellersville, has been elected a trustee of the Norristown State Hospital.

Connellsville Needs General Hospital.—Physicians of Connellsville are agitating the question of making the Cottage State Hospital a general institution rather than one for emergency cases. It is proposed to erect a new building on the hospital site, to be used for medical cases, and it is also suggested that a new and up-to-date operating equipment shall be secured.

Philadelphia

Personal.—Dr. W. W. Keen delivered an address on "The Contrast Between Surgery of the Civil War and That of the Present European War" before the Philadelphia County Medical Society, March 24.——Dr. W. Joseph Hearn is reported to be seriously ill at his home as the result of a cerebral hemorrhage.

Hospital Items.—Builders are estimating on a one-story brick addition at Corinthian and Girard avenues for the German Hospital.——Frankford Hospital has acquired title to property at 5000 Frankford Avenue, subject to a ground rent of $100. The lot is 26 by 125 feet and will be used for an addition to the hospital.

Nurses Home Building.—Contracts have been signed for the erection of a nurses home building on the grounds of the Philadelphia Hospital for Contagious Diseases. The building will be four stories in height, 39 by 119 feet, and will cost $52,000.——An observation building will also be erected on the grounds, one story in height, 60 by 60, to cost about $69,000.

Joint Obstetrical Meeting.—The members of the New York Obstetrical Society will be guests of the Philadelphia Obstetrical Society, April 1. The meeting will be held at the Hotel Rittenhouse and will be preceded by a dinner. During the morning and afternoon of the day of the meeting a series of clinics on obstetrics and gynecology will be given by the members of the Philadelphia Obstetrical Society.

Sanitarium Meeting.—At the annual meeting of the White Haven Sanitarium Association, Dr. Lawrence F. Flick, president, announced that owing to the condition of the finances of the treasury of the Free Hospital for Poor Consumptives and White Haven Sanitarium Association, the officials of the association have been compelled to discontinue the treatment of free tuberculous patients in the Jefferson Hospital branch at Third and Pine streets. That institution has made an appeal to the state charities for further appropriation to continue the work. Dr. Lawrence F. Flick was reelected president, Dr. Joseph Walsh, vice-president and Dr. Frank A. Craig, a director.

Postgraduate Course in Pulmonary Diagnosis.—The staff of the tuberculosis department of the Philadelphia General Hospital announces that a postgraduate course of daily instruction in pulmonary diagnosis and tuberculosis will be given beginning April 12 and ending April 30, that opportunity will be given to study cases and that members of the staff will take personal charge of the instruction from 4 to 6 p. m. daily, except Saturday and Sunday. The instructors will be Drs. Ward Brinton, A. C. Morgan, E. J. G. Beardsley and A. P. Francine. For further information and registration, Dr. Francine should be addressed at 264 South Twenty-First Street.

TENNESSEE

New Clinic at Nashville.—A new home for a free clinic at North Nashville, operated under the auspices of the Nashville Parent-Teachers' Association, was opened February 26.

Campaign Against Hookworm.—The State Board of Health announces a three-week dispensary campaign against hookworm in McNairy County. The campaign commenced March 16 and is being carried on at the following places: Ramer, Stantonville, McNairy, Bethel Springs and Selmer.

Prison Hospital for Consumptives.—Victims at the State Penitentiary who are suffering from tuberculosis are to have hospital accommodations provided for them on the state property. The old Baxter Building on the state farm is admirably adapted for this purpose and is to be remodeled and will accommodate from 75 to 100 patients.

Personal.—Dr. R. M. Kirby-Smith, Sewanee, who has been in charge of two units of the American Red Cross at Paris, has volunteered for service at Saloniki, Greece, and has been detailed for work there.——Dr. J. Owsley Manier, Nashville, has been designated to attend United States prisoners at the Davidson County Jail, succeeding Dr. Garland F. Cummins.

Addition to Sanatorium.—An addition to the Nashville City and Davidson County Hospital for Tuberculosis near Nashville has been decided on by the hospital board. The new building to be erected on the grounds of the present hospital will cost about $50,000 and will provide for more than sixty patients. The building is expected to be ready for occupancy late in the spring.

CANADA

Antityphoid Vaccination on Canadian Pacific.—For some time the Canadian Pacific Railway has been furnishing antityphoid vaccine to all employees on the western lines who would consent to take it. In 1914, 11,772 employees were inoculated, of whom only four afterward contracted typhoid fever, with one fatal result. Among those not inoculated sixty-two cases occurred in camps, nine of them proving fatal. On the Alberta division eleven cases of typhoid developed at Calgary among thirty-five men who had refused to be vaccinated.

Personal.—Dr. Walter S. Downham, London, has been appointed temporary assistant medical officer of health to Dr. Theophilius V. Hutchinson.——Dr. Frank S. Keele has been appointed medical officer of health of Portage la Prairie, Man., in succession to Dr. Albert E. Walkey.——Dr. A. E. Kelly has been appointed medical officer of health for Swift Current, Sask.——Dr. Richard A. Reeve, professor of ophthalmology in the University of Toronto, has been made professor emeritus.——Dr. Angus A. McLellan, Summerside, P. E. I., fell from a street car in Montreal, March 13, and is now lying unconscious and in a critical condition at the Western Hospital.

Chiropractors Denied Recognition.—Through the medium of a private bill in the Ontario legislature, the chiropractors asked for public recognition and power to establish a training college. They did not, however, get very far forward in their desires. When the proposed measure came before the private bills committee, it received scant encouragement from two or three members of that body, while many objected strongly to the establishment of any more so-called medical colleges. The government turned a deaf ear to all solicitations in behalf of the measure, and stated its policy was antagonistic to the establishment of any more medical colleges of any description in the province. Mention was made of the promised commission on medical education and medical practice, but although the government reaffirmed its decision to appoint such a commission, no definite time could be set for the appointment at present. The chiropractors now state that they will await the establishment of the commission and make any representations they would have to make before that body.

University of Toronto Base Hospital Staff Selected.—This hospital is to be called No. 4 General Hospital, and is furnished by the University of Toronto to the War Office: administrative staff, Lieut.-Col. James A. Roberts, commandant; Major William B. Hendry, second in command; Capt. Norman J. L. Yellowlees. Surgical staff, Drs. Alexander Primrose, Frederick N. G. Starr, P. Walter H. McKeown, equal rank; Drs. William J. O. Malloch, E. Stanley Ryerson, George E. Wilson, Robert E. Gaby, Frederick E. Watts, John G. Gallie, Harold M. Wookey. Drs. Frederick W. Marlow and Prof. B. P. Watson may be added to these. Medical staff, Drs. Andrew R. Gordon and Graham Chambers of equal rank; Drs. Donald McGillivray, Harold C. Parsons, David King Smith, Charles S. McVicar, George F. Boyer, F. R. D. Hewitt, R. G. Armour, John H. McPhedran. Nose and throat, Dr. Gilbert Royce. Eye and ear, Dr. William H. Lowry, Guelph, Ont. Genito-Urinary, Dr. Robert Pearse. Sanitation, Prof. John A. Amyot. Laboratory staff, Drs. Duncan A. L. Graham, Noble C. Sharpe, Andrew A. Fletcher, Cyril G. Imrie, London. Dental staff, Dr. George Dow.

Canadian Doctors for Servia.—Some time ago Sir Lomer Gouin, premier of Quebec, received a letter from the Servian Royal Legation in London, England, asking for volunteers from the Canadian profession to attend the Servian wounded. The following have volunteered for service with the Servian troops: Drs. Albert Paling, Winnipeg; J. M. Casserly, St. Thomas, Ont.; W. J. McAllister, Calgary; A. W. M. Leclair, Letellier, Man.; Oliver S. Waugh, Winnipeg; Donald C. Hart, Kipling Station, Sask.; Arthur Macaan, Birtle, Man.; Robert L. Hutton, Rosthern, Sask.; J. Hetherington, Carlvale, Sask.; Thomas H. Smith, North Sydney, N. S.; James Peake, Winnipeg; William A. Dymond, Yarmouth, N. S.; Alex. Osmanley, Toronto; W. P. Markasee, Springhill, N. S.; Oscar A. Cannon, Stratford, Ont.; A. H. Bowen, London, Ont.; D. E. Scott, London, Ont.; J. V. Brandon, Winnipeg; L. Zealand, Winnipeg; James M. Baxter, Chatham, N. B.; William B. McVey, St. John, N. B.; G. Degrys, Abenakis Springs, Que.; Alfred Whitmore, Cabri, Sask.; Victor Bourgeault, Marcelin, Sask.; C. M. Keiller, London, Ont.; G. Edward Duncan, Vernon, B. C.; Melville F. Lucas, Drydent, Ont.; J. Murray, Winnipeg; P. A. Guay, South Shipshaw, Que.; E. E. Robrabough, Sanford, Man.; Ben A. Hopkins, Blaine Lake, Sask.; J. B. MacKay, Kitscoty, Alta.

GENERAL

Society of American Bacteriologists to Meet.—The council of the Society of American Bacteriologists will hold a special meeting in San Francisco, Aug. 3-5, 1915. Dr. Wilfred H. Manwaring, Stanford University, California, is the local chairman.

New Officers of Biologic Chemists' Society.—At the annual meeting of the American Society of Biologic Chemists the following officers were elected: president, Dr. Walter Jones, Baltimore; secretary, Dr. P. A. Shaffer, St. Louis. The next meeting will be held in Boston, Dec. 27 to 30, 1915.

American Pediatric Society Meeting.—The American Pediatric Society will hold its 1915 meeting May 24-26 at Lakewood, N. J. The headquarters will be at the Laurel House. The society was scheduled to meet at Cape May, but as the hotels at that place will not be open at the time set for the meeting, the change was made. An interesting feature of the meeting will be the report of the Committee on Child Labor in cooperation with the Federal Children's Bureau.

The Campaign Against Malaria.—In the campaign against malaria in the South Surgeon Rudolph H. von Ezdorf, U. S. P. H. S., from his headquarters at Mobile has sent out cards to physicians all over the malarial territory asking for information as to the prevalence of the disease. The idea is to get accurate information as to the incidence of the disease and its geographic distribution. Negative as well as positive replies are desired. It is the intention to collect information on the malarial situation by sending out cards each month.

Vaccination of Government Employees.—The Secretary of the Treasury has issued an announcement that hereafter civil employees of the federal government, whose duties require them to perform interstate travel or who are regularly engaged in the handling of mail or other material in interstate traffic, may receive vaccination against smallpox or typhoid fever without cost. They will apply to persons designated by the Public Health Service for vaccination.

The Rockefeller Foundation Enters China.—The Rockefeller Foundation announces that it has decided to undertake a comprehensive plan for the improvement of medical and hospital conditions in China. For this purpose it has established the China Medical Board of the Rockefeller Foundation, the plans of which include aid for the two or more medical schools in China which are, at present, inadequately equipped; the strengthening of the staff in the mission and other hospitals; assistance in the establishment of modern tuberculosis hospitals and the establishment of six traveling scholarships of $1,000 each to enable Chinese graduates in medicine to prosecute further study abroad and of five scholarships to enable Chinese nurses to obtain training in this country. This action of the foundation is based on the report of its special commission which has made during the last year a first-hand exhaustive study of the medical needs of China.

For Mine Surgeon.—A competitive examination for the position of mine surgeon in the Pittsburgh Bureau of Mines is announced by the United States Civil Service Commission to take place April 20, 1915. The position will pay from $2,400 to $2,700. Those passing the examination will be eligible for appointment to other similar positions as vacancies occur. The duties of the person appointed to the position named will be to travel with the mine rescue cars and make physical examinations of all applicants for mine-rescue and first-aid training; to aid in improving the technic of first-aid methods; to enter mines after fires and explosions for the purpose of taking blood samples and making other physical examinations of the victims before their removal; to examine miners for the effect of their occupation on health; to examine into the sanitary and hygienic conditions in and about mines and mine villages, etc. Competitors will not be assembled for examination, but will be rated on education, experience, publications or thesis. Graduation from an approved medical school and two years' medical and surgical experience are required of applicants, who must be under 45 and must be citizens of the United States. Complete information can be obtained from the U. S. Civil Service Commission, Washington, D. C.

To Combat Typhus Fever.—An American sanitary commission has been organized under the auspices of the American Red Cross and the Rockefeller Foundation to aid in the control and suppression of typhus fever which is said to have claimed 60,000 victims in Serbia. The American Red Cross announces that $50,000 has been furnished for the carrying on of this work. The commission consists of Drs. Richard P. Strong, Andrew W. Sellers, George C. Shattuck and Francis B. Grinnell, Boston; Thomas W. Jackson, Spartanburg, S. C., and Hans Zinsser, New York. Mr. Charles S. Eby of Washington is secretary of the commission, and two sanitary inspectors are also engaged in the work.——The Rockefeller Foundation has made a contribution of $25,000 toward the cost of sending a special sanitary commission to Serbia.——Mr. Ernest Bicknell, secretary of the American Red Cross, and Henry James, Jr., of the War Relief Commission of the Rockefeller Foundation, have returned to London after an inspection in Serbia. They report that typhus fever has already caused the death of sixty out of 400 native physicians of the country; that two American units and one British unit of the Red Cross have been compelled to suspend their regular work because of the disease, and that nine American nurses and two physicians have contracted typhus.——Two American physicians have already been reported as having died from typhus in Serbia.

FOREIGN

News from Foreign Exchanges.—The *Annales de Gynécologie et d'Obstétrique* for July was received at this office, March 16, with an apology from the publishers for the delay, owing to the mobilization. They state further that during 1915 they will issue six numbers of the *Annales* which will complete the volume of twelve numbers to which the subscribers are entitled. The years 1914 and 1915 will thus form a single volume. Many of our German exchanges are published by the "zwanglos" method, that is, they appear irregularly as material accumulates without regard to any special date or time limit. This has the advantage that there is no temptation to pad out the periodical with inferior matter, as might possibly occur if it had to appear at a certain date. The subscribers pay by the volume for these "zwanglos" publications; sometimes all the numbers of the volume are received within six weeks or not within as many months or even years. They cannot be called "journals" or "periodicals," and generally are published as "Archives," "Beiträge" or "Mitteilungen." This method of publication enables the publishers to wait tranquilly now until the war clouds have passed over, if need be. The ones devoted to surgery, however, are coming with unwonted frequency, the articles, and quality of the illustrations and paper giving no hint that a war is in progress. All our foreign exchanges have been received with surprising regularity during the last five months as is readily apparent in our Foreign Current Literature Department. Occasionally a number is delayed and arrives with later issues, but as a whole the mail service for second class matter has not been demoralized by the war to date.

WAR NOTES

Unit Sails for Russia.—An American Red Cross unit for work behind the Russian lines at Kiev, Russia, in charge of Major Harry Hamilton Snively, M. C., Ohio N. G., Columbus, sailed for Europe on the *Bergensfjord,* March 22. Eleven nurses sailed on the same steamer.

Philadelphia Ward in the American Ambulance Hospital.—The $15,000 necessary to open the Philadelphia ward of forty beds in the American Ambulance Hospital, Paris, and to maintain the ward for six months, has been exceeded by more than $8,000, and in addition five individuals have offered to duplicate their subscriptions, amounting in all to about $1,800, if it should be necessary to keep the ward open for a second period of six months. The staff from the University of Pennsylvania will take charge of an entire floor of the institution during the months of July, August and September, following the Harvard Medical School contingent.

Efficacy of Preventive Inoculations. — Our German exchanges state that the inoculations of the troops against typhoid and cholera have proved most gratifyingly effectual. No epidemics of either have occurred among the troops. The spread of typhus from the Russian prisoners is prevented by their strict isolation. Several deaths have occurred among the German physicians who have had charge of the Russian prisoners, the latest victim being Prof. von Prowazek, a collaborator with Schaudinn and his successor at Hamburg, a prominent research worker on protozoa and the physiology of the first forms of living matter. He had made typhus a special study in recent years, and has now fallen a victim to it, at the same camp where Jochmann acquired it. An official order now requires all cars returning from Russia to be placarded "Aus Russland! Seuchenverdacht! Before used again thoroughly sterilize and unlouse!" No upholstered cars are allowed to be sent on the lines into Poland or Russia.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession for the week ending March 20, 1915, lists the following contributions:

Sebastian Co. Medical Society, Fort Smith, Ark.		$ 15.00
Dr. F. W. Johnson, Boston, Mass.		25.00
Dr. E. P. Quain, Bismarck, N. Dak.		10 00
Dr. N. O. Ramstad, Bismarck, N. Dak.		10.00
Dr. Haven Emerson, New York, N. Y.		15.00
Dr. Edward B. Angell, Rochester, N. Y.		10.00
Dr. T. A. Davis, Chicago, Ill.		25.00
New Bedford Medical Society, New Bedford, Mass.		50.00
Dr. Newton B. Waller, New York, N. Y.		5.00
Dr. Charles G. Eicher, McKees Rocks, Pa.		5.00
Dr. William H. Perry, Sterling, Ill.		5.00
Dr. Frederick A. Spafford, Flandreau, S. Dak.		10.00
Dr. George L. Johnson, Newfolden, Minn.		1.00
Salt Lake Co. Med. Soc., Salt Lake City, Utah		100.50
Dr. and Mrs. Clem D. McCoy, Kenton, Ohio		50.00
Dr. E. A. Weiss, Pittsburgh, Pa.		10.00
Dr Hubert Claytor, Hopkins, S. C.		5.00
Dr. C. E. Goodman, Virginia, Minn.		5.00
Tri-County Med. Soc., Copiah-Lincoln-Pike Counties, Miss.		10.00
Dr. Harold W. Dana, Boston, Mass.		25.00
Receipts for the week ending March 20		$ 391.50
Previously reported receipts		4,830.00
Total receipts		$ 5,221.50
Previously reported disbursements		
1,625 standard boxes of food @ $2.20	$ 3,575.00	
542 standard boxes of food @ 2.30	1,246.60	
Disbursements for the week ending March 20		
173 standard boxes of food @ $2.30	$ 397.90	
Total disbursements		$ 5,219.50
Balance		$ 2.00

F. F. Simpson, Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

"The Commission for Relief in Belgium, according to Mr. Bates, its vice-chairman, was granted by the German government not only the sole right to transport food into Belgium but given the active sympathy and aid of the German military authorities. Despite reports to the contrary, not one pound of food sent in has been appropriated."

The contributions made by American doctors, through the Committee of American Physicians for the Aid of the Belgian Profession, are placed in the hands of the above commission, for distribution among the members of the Belgian profession and their families.

Hon. Brand Whitlock, American minister at Brussels, is credited with saying on March 17, that the food then in Belgium would not last longer than April 1.

Red Cross Shipments.—The American Red Cross has recently made a number of heavy shipments of medical and surgical relief supplies to the foreign Red Cross organizations, including 286 cases to the Serbian Red Cross, 42 cases to Dr. Ethan Flagg Butler of the American Red Cross at Gevgalia, Serbia, 380 cases and boxes to the Austria-Hungarian Red Cross at Vienna, 236 cases to the British Red Cross, London, and 27 cases to Dr. Howard F. Beal of the American Red Cross at the American Hospital, Paignton. ——Prince Henry of the Netherlands has acknowledged receipt of a check for $5,000 from the American Red Cross for use in the Netherland Red Cross for European war relief work.——The Belgian government also acknowledged receipt of $6,000 lately contributed to the Belgian Red Cross by the American Red Cross.——Dr. Henry Van Dyke, American minister to the Netherlands, has acknowledged receipt of 325 boxes of hospital supplies forwarded by the American Red Cross on the *Aymeric* for the German Red Cross, and also of 200 boxes of supplies for Belgian relief work shipped by the same steamer.——Red Cross supplies are being transported free of charge by all the railways of the Netherlands.

Physicians Urgently Needed in Serbia.—The *Presse Médicale* of March 4 publishes an official notice from the minister of war addressed to the chief of the medical department of the military district, including Paris. It is headed "Urgent," and announces that the government of Serbia finding itself powerless to combat the epidemics of exanthematous typhus, smallpox and relapsing fever, which are ravaging the Serbian army and the civilian population, has just issued a pressing appeal to the allied powers begging each to send her a hundred physicians. The minister of war adds: "I am extremely anxious that the French army shall respond at once to this urgent appeal." He enumerates further the positions and salaries offered those who will go. Each army medical officer will be given the rank the step above the one he has in his own army, and the emoluments to correspond will be computed from the day he sets sail for Serbia from Marseilles. The various salaries are specified in turn, the highest being 1,200 francs, with a daily allowance of 10 francs. The minister of war asks to be informed at the earliest possible moment of all those French army medical officers who are willing to be detached for service in Serbia.

LONDON LETTER

London, March 5, 1915.

Overprescribing by Panel Physicians

In a previous letter to The Journal a grave defect in the working of the insurance act, arising from its socialistic nature, was pointed out—excessive sickness claims. A similar defect due to the same cause has arisen in connection with the drug fund. In the London district the fund shows a deficiency of $260,000, about 27.5 per cent. As drugs are supplied by the state, physicians have no interest in economy and some have been guilty of great extravagance. In certain cases wherein very expensive drugs have been ordered, physicians have been asked to give an explanation, and failing a satisfactory one, have been charged with the expense; but this is not a sufficient check. Speaking at a meeting of the London Insurance Committee, the pharmacists' representative said that if the prescribing had been at all reasonable, the fund would have been sufficient. The trouble was due to a certain number of physicians.

The position at the great manufacturing town of Salford is instructive. The system of payment per head for the insured, which is in vogue in most parts of the country, has not been adopted there. The whole of the panel fund is pooled, and the physicians are paid out of it at an agreed rate per visit or consultation so far as the pool suffices. Up to the present it has sufficed only to pay about two thirds of the doctors' accounts. The pharmacists are in no better position, and owing to their dissatisfaction and the charges leveled against the physicians of general overprescribing in 1913, a somewhat novel method was adopted at the beginning of 1914. The whole of the drug fund of 50 cents per insured person was credited to the panel physicians' pool, and, on the other hand, each panel physician was debited with the cost of the prescriptions given by himself. The pharmacists were in any case assured of at least 36 but not more than 48 cents per insured person in the aggregate. In this way, while the aggregate sum available for the pharmacists would not be affected, an individual responsibility would be thrown on each panel physician for his own prescriptions. The result was striking. The pharmacists' accounts fell nearly to one half. But the Insurance Committee was far from satisfied with this result, and suggested that the insured were not getting the medicines they should. Thus the administrators of the insurance act are in a dilemma. If the physicians are not interested in the cost of drugs, they are considered guilty of extravagance; if they are interested, they are considered to stint the insured!

The Prohibition of the Sale of Infected Shellfish

The local Government Board has issued an order requiring sanitary authorities to make regulations prohibiting the sale of shellfish liable to cause danger to public health. The order gives power to the sanitary authority of a district in which shellfish layings are situated to close any layings in regard to which there is evidence that shellfish from such layings have actually caused infection or other danger, or are liable to be a source of danger to public health. The health officer of such a district is instructed to examine the conditions of the layings and to report to the local authority any case in which they are so situated as to be liable to dangerous contamination, with a view to steps being taken under the regulations to prevent shellfish being distributed for sale for human consumption from such layings unless relaid in fresh water for a period sufficient to free them from contamination; the period suggested is not less than a fortnight. The board advises that any action taken with a view to the closing of a laying should be based rather on epidemiologic and topographic considerations than on the results of bacteriologic examination. The order requires a sanitary authority of a district in which layings are situated to take action on receipt of a representation from another local authority in whose district the shellfish are consumed. If the local authority where the layings are fails to act, the local authority complaining will have an appeal to the Local Government Board.

The Testimonials of a Nostrum

The ways of the patent medicine man are curious, if not edifying, and display extraordinary variety. The proprietors of a preparation called "Winox" have adopted a new method of obtaining testimonials from the profession—paying magnificently for them. They claim that their preparation is not secret, as "the full analysis is printed on every bottle, the alcohol in Winox is equivalent to that in well matured port wine; the extract of beef and malt used contains 35 pounds of English meat and 11 pounds of malt." The usual method of obtaining testimonials, which is sometimes successful, is to send broadcast to physicians free samples for purposes of trial. The proprietors of Winox have taken a new departure. They offer to pay generously—$15 for a report on the results of three or more cases. Their announcement is candor itself. They do not require or expect that all these trials will be favorable—"Winox is no panacea, but from the reports we send you we feel confident that a large majority of such trials must be satisfactory and on these grounds will pay for all without distinction." It is not surprising that they have succeeded in obtaining a number of testimonials, but these mostly take the form of saying that such and such a patient took Winox when ill and recovered!

A Judge and Professional Secrecy

In this country a physician has no privilege at law to avoid disclosing information acquired in his professional capacity. Like a great deal in our procedures, practice is governed by precedent and not by set rules. If a physician refuses to answer a question on the ground of professional confidence, the judge can at his discretion commit him to prison for contempt of court. In the rules laid down in ethical text-books for the guidance of physicians, it is pointed out that it rests with them to a great extent whether any one shall know whether they have information to give, and that in cases of crime they are neither expected, on the one hand, to act as detectives, nor, on the other, are they sheltered from blame if by their silence they aid crime. They are also told that, generally speaking, they are bound to silence in the interests of their patients. In the absence of any definite rule, difficulties naturally arise. The following is a recent example: A woman underwent operation for the production of abortion. Three physicians subsequently attended her in succession, and to one she confided the name of the operator. She died without any deposition being taken or any statement being made on her death bed which could be used as evidence in a court. Among her papers was found a letter making an appointment with a woman, who was arrested and charged with the crime. At the trial the judge pointed out that any statement made by the deceased to a physician was not evidence in the legal sense. He directed the grand jury (which in this country holds a preliminary investigation before a prisoner is brought to trial) not to find a "true bill." He said that the law provides in case of a person who is seriously ill or who in the opinion of a physician is not likely to recover, that the evidence of such a person may be taken by a magistrate. Under the present circumstances, it was the duty of the physician to communicate with the police so that steps could be taken for the administration of justice. No one would desire to disturb the confidential relation between the physician and his patient, but there were cases in which the desire to preserve that confidence should be subordinated to the duty cast on every good citizen to assist in the investigation of crime. Here as the woman was likely to die and her evidence likely to be lost, it was the duty of the physician to communicate with the police. The judge added that he was moved to make these observations because an opinion to which he was a party had been given twenty years before when he was at the bar and had been either misunderstood or misrepresented in a text-book on medical ethics. Commenting on the judge's remarks, the *Lancet* "doubts if there will be any general agreement in the medical profession with his views." Returning to the subject in a leading article in a subsequent issue, our contemporary protests against the view that it is the physician's duty to violate professional confidence in circumstances which are not absolutely compelling. The keeping of the patient's secret, whether a guilty one or not, is a point of professional honor. The function of the physician is to save life, not to act the part of a detective. The revelation of patients' secrets would diminish or destroy all trust in the profession, and cause patients to seek treatment by the unqualified. The physician should discharge the duty of bringing a criminal to justice by every legitimate means. He should use his influence to obtain the patient's consent to this course. But if she refuses he should not set the law in motion except under the most unusual circumstances. It is noteworthy that a celebrated criminal judge, the late Lord Brampton, once expressed an opinion diametrically opposite to that of the judge in the present case. The moral of it all seems to be that English law is chaotic and badly in want of some system of codification, such as the Code Napoléon.

PARIS LETTER

Paris, March, 4, 1915.

The War

EXCHANGE OF WOUNDED SOLDIERS

An agreement has been made between the French and German governments with regard to the exchange of wounded soldiers who are unfit for further military service. The French and German governments have communicated the agreement to the Swiss federal council, and the physician in chief of the Swiss Red Cross, Colonel Bohny, has gone to Constance to arrange with the German authorities for the transportation of these wounded soldiers. Transportation will be effected by the Swiss Red Cross in sanitary trains put at its disposition by the administration of the Swiss army. Each train is under military authority and will carry 250 wounded who will be cared for during transit by nurses and members of Red Cross units. A train will go in each direction every two days. The number of French wounded to be sent home is about 2,500.

THE MEDICAL SERVICES AND THE CIVIL POPULATION

Public opinion is much concerned with the situation, from the medical point of view, of the civil population in certain zones of the country. M. Millerand, minister of war, after a conference with M. Malvy, the minister of the interior, has taken steps to relieve the situation of zones completely deprived of physicians and pharmacists. Whenever such a situation is reported by the prefect of a department, the director of the health service in that region is to see that all imperative necessities shall be satisfied by the physicians and pharmacists at the disposal of military authorities. So far as pharmacists are concerned, the attempt will be made so far as possible, in every locality where a pharmacist is lacking, to send back to his own laboratory a pharmacist who comes from the locality.

MEDICAL MISSION IN SERBIA

The Serbian government, finding itself unable to combat the epidemics of exanthematic typhus, smallpox and relapsing fever which are raging in the Serbian army and among the civil population, has presented a pressing request for a hundred physicians from each of the allied powers. Our minister of war attaches great importance to a satisfactory response from the French army to this appeal. Special privileges will be granted to military physicians to consent to be detached for service in Serbia. In particular, they will have in the Serbian army a higher grade than that which they held in the French army.

PHOSPHORUS IN WOUNDS PRODUCED BY GERMAN ARTILLERY PROJECTILES

At one of the last sessions of the Société de biologie, M. Victor Henri, maitre de conférences at the Sorbonne, called attention to the fact that wounds produced by shrapnel ball and fragments of German shells may contain phosphorus. The presence of this element, even in very small quantities, may have an important effect, producing a mortification of tissues in which anaerobic microbes easily develop. It is possible that the great majority of cases of suppurating wounds, tetanus and gaseous gangrene are due to the introduction of phosphorus by shrapnel and fragments of shell.

WOUNDS OF THE EXTERNAL GENITAL ORGANS

Dr. E. Delorme, medical inspector general of the military health service since the beginning of the war, has been impressed by the relative frequency of wounds of the external genital organs. In scrotal lesions with hernias of the testicle, he advises reduction; expectant treatment, pure and simple, generally results in gangrene. Wounds of the urethra with loss of substance ultimately require dilatation, urethrotomy or urethrectomy. Tangential wounds of the perineum sometimes injure the urethra over a considerable extent. Such lesions are amenable to autoplasty. Among wounds of the penis, through and through perforations of the *corpora cavernosa* are observed rather frequently. The cicatricial indurations which result produce deviations.

TRAUMATIC CATARACT OF WOUNDED SOLDIERS

Should a wounded soldier affected with traumatic cataract be operated on for this condition? One of our most eminent oculists, Dr. E. Valude, replies in the negative. He believes that such a wounded soldier should be recommended for discharge or for the auxiliary service; later, after he has been freed from service, the patient will be at liberty to have such an operation performed as he desires. The operation, whether successful or not, cannot increase the military usefulness of a soldier. Whether the cataract is removed, even with the best results, or not, the wounded man is eligible for discharge or for the auxiliary service, for an eye that has been operated on, even if good vision is secured, does not contribute to binocular vision in such a manner as to insure accuracy of aim in firing. The government has, therefore, nothing to gain by incurring the responsibility of an operation, thereby perhaps becoming liable for pension if the complications following the operation make the condition of the wounded eye worse or even involve the other eye by sympathy.

Inflammation of the Parotid Glands in Typhoid Fever

An interesting discussion on this subject was held by the Société médicale des hôpitaux de Paris. Dr. P. Emile Weil has observed nine cases of parotid inflammation during the stage of crisis in serious typhoid fever. Two of these inflammations were merely fluctuating, others suppurating. The first were cured in a week, being treated merely by hot, wet compresses covered with oiled silk or other covering, renewed three times in twenty-four hours. In the seven other cases there were five deaths. The two cases of suppurating parotiditis which ended in recovery were treated by expression of the gland and repeated application of hot, moist compresses. Dr. Siredey remarked that while parotiditis is not rare in typhoid fever, it is more frequent in appendicitis. It is a frequent complication in intestinal infections. Siredey treats cases of parotiditis systematically by anointment with a salve containing one-sixth collargol, followed by hot moist dressings. Dr. Albert Mathieu has obtained rapid cures by applying compresses wet in very hot water at the tumefied point threatening suppuration. These applications, lasting from ten to twelve minutes, are repeated four times a day. Dr. Gailliard considers massage of the gland dangerous. Dr. Josué, on the other hand, believes that expression of the gland, practiced from the outset, constitutes an excellent method of treatment permitting the avoidance of a voluminous abscess. Dr. Netter, agrégé professor at the Faculté de médecine de Paris, is also in favor of glandular expression.

BERLIN LETTER

Berlin, Feb. 16, 1915.

Experiences in the Examination of Volunteers

Dr. Siegfried Kaminer and Dr. Antonio da Silva Mello, on the basis of examinations which they have made in the Charité, divide the volunteers into four classes: 1. Those unquestionably fit for service in the field. 2. Those who are conditionally fit; that is, fit only for certain kinds of weapons. 3. Those completely unfit for service at the front. 4. Those who are not fit for service at the front as a consequence of insufficient physical development at the time of enlistment, but in whose case it is reasonable to expect that they may be made fit by physical training in a moderate time. It is not difficult for the experienced examiner to decide on those who are generally fit, as well as those who are completely unfit, but it is not so simple to determine the fitness for special kinds of weapons. In general, these cases involved those with varicose veins, flat feet and hernia, which render soldiers unfit for marching. In a second class was the important diminution of sharpness of vision, which renders soldiers unfit for marksmen. The most difficult task was the decision with regard to the class of volunteers in which fitness was to be expected after a better physical development, but during the course of the war definite normal values are difficult to establish in these matters. Still the order of service gives the general signs for a vigorous physical development: a firm elastic skin, thick neck, broad shoulders, a regularly developed chest, a well-built back, well-placed shoulder blades, strong bones, powerfully developed musculature, supple arms and legs and normal body weight. For young people who announce themselves voluntarily for military service, the smallest permissible physical demands may be established, or it may be assumed that the enthusiasm of the volunteer will make him adapted to a high degree to the difficulties and fatigues. Both physicians, however, regard the enthusiasm for war at the time of enlistment as a quantity that cannot be measured. Among 1,829 who were examined, the following results were obtained in relation to age and fitness, reckoned by percentage:

Age	Total	Fit Pr. Ct.	Conditionally Fit Pr. Ct.	At Present Unfit Pr. Ct.	Rejected Pr. Ct.
15 and under	20	40	..	60	..
16	101	55	..	39	6
17	313	48	3	37	11
18	298	61	6	24	8
19	297	65	6	18	11
20-24	359	66	10	10	14
25-29	225	79	8	..	13
30-39	168	69	14	..	17
40 and over	48	71	10	..	19
Total	1,829	63	7	18	12

Fitness for service increases in proportion to age from 16 to 40. This rise is not without importance in estimating the value of fitness for service of the members of the Landsturm. It is further interesting that general physical weakness was found among 25 per cent. of the men who had already passed their twentieth year, but in whom there were no signs of any kind of organic disease. An increased physical development in this respect in the future will give especially favorable results. Seventy per cent. of those enlisted were fit to enter the army immediately; 18 per cent. after a previous physical training, and only 12 per cent. were completely unfit. Surely this is a significant fact with reference to the fitness of our people for war. A statistic compilation, with reference to trades, gave the following figures:

Trade	Total	Fit Pr. Ct.	Conditionally Fit Pr. Ct.	At Present Unfit Pr. Ct.	Rejected Pr. Ct.
Laborers and handworkers	706	68	7	17	8
Merchants and clerks	513	58	9	17	16
Schoolboys	348	50	5	36	8
Scientists and students	250	56	10	16	17

The largest number of those eligible are found among the laborers, while those rejected were most numerous among scientists and students. Among 1,682 of those examined, it was determined whether they came from a city with over 50,000 inhabitants or from a smaller city or the country. Among 1,050 inhabitants of cities, 58 per cent. were fit, 8 per cent. were conditionally fit, 24 per cent. not at present acceptable, and 10 per cent. rejected. Among 632 inhabitants of the country listed, 58 per cent. were fit, 9 per cent. conditionally fit, 24 per cent. not yet acceptable, and 9 per cent. rejected. The percentage differs little in the two classes.

Marriages

Otho Granville Kesling, M.D., Arlington, Wash., to Miss Leila G. Buckman of Philadelphia, in New York City, recently.

Frank M. Eccles, M.D., Oxford, Md., to Miss Ethel Ray Neal of Cambridge, Md., at Baltimore, March 10.

James A. Ledbetter, M.D., to Miss Myrtle Allen, both of Oakwood, Tenn., at Woodlawn, Tenn., March 5.

Theodore H. Jones, M.D., West Hickory, Pa., to Miss Mellie Bunce of Troy Center, Pa., March 25.

Matthew W. Cave, M.D., to Mrs. Carrie McLean, both of Wichita, Kan., at Dallas, Tex., March 10.

Ellery May Wing, M.D., to Miss Nellie Emery Porter, both of North Anson, Maine, March 15.

Rosa B. Howland, M.D., Memphis, Tenn., and Mr. J. J. Hamm of Washington, D. C., March 4.

Frederick J. Harter, M.D., to Mrs. Goldie Benton Boynton, both of Herkimer, N. Y., March 4.

Mayes B. Williams, M.D., to Miss Carolene Louise Hipp, both of Wheeling, W. Va., March 11.

Isaac Chandler Walker, M.D., to Miss Jessie Helen Walker, both of Boston, recently.

Walter J. Greaves, M.D., Biloxi, Miss., to Miss Anna P. Rice of New Orleans, March 2.

James Herbert Lawson, M.D., to Miss Elsie Morgan, both of New York City, March 10.

John Peter Wyles, M.D., to Miss Carrie Colvin, both of Cynthiana, Ky., March 10.

Deaths

Joseph Howard Raymond, M.D. Long Island College Hospital, Brooklyn, 1868; College of Physicians and Surgeons in the City of New York, 1869; of Brooklyn; from 1888 to 1903 editor of the Brooklyn Medical Journal; for forty years professor of physiology and hygiene and secretary of the faculty of his alma mater, secretary of the Hoagland Laboratory and of the Polhemus Memorial Clinic; author of "The History of the Long Island College Hospital and its Graduates," and of a textbook on physiology; formerly assistant sanitary inspector of the New York City Department of Health; during two administrations health commissioner of Brooklyn; died in the Long Island College Hospital, March 8, six days after a surgical operation on the stomach, aged 69.

Alfred Mason Amadon, M.D. Dartmouth Medical School, Hanover, N. H., 1897; of Boston; a Fellow of the American Medical Association and a specialist on diseases of the ear; formerly lecturer on otology in Harvard Medical School; assistant surgeon to the ear department of the Boston Dispensary; and senior surgeon in the ear department of the Massachusetts Charitable Eye and Ear Infirmary; consulting otologist to the Boston Floating Hospital; an author of many articles on the pathology of the ear; since 1912 a resident of the Adirondack Cottage Sanitarium, Saranac Lake, N. Y.; died in the General Hospital, Saranac Lake, March 6, aged 47.

Orris E. Herrick, M.D. Albany (N. Y.) Medical College, 1871; a Fellow of the American Medical Association and president of the Grand Rapids Academy of Medicine in 1887-88; of Grand Rapids, Mich.; for many years consulting gynecologist to St. Mark's and the Union Benevolent Association hospitals, Grand Rapids; a member of the Michigan State Board of Health in 1885; professor of gynecology in Cincinnati Medical College in 1878; and editor of the *Obstetric Gazette* from 1878 to 1882; died in the De Vore Sanatorium, Grand Rapids, March 5, from cerebral hemorrhage, aged 66.

Benjamin Avery Segur, M.D. College of Physicians and Surgeons in the City of New York, 1860; assistant surgeon of U. S. Volunteers during the Civil War; later a practitioner of Brooklyn; consulting physician to St. Peter's and St. Mary's hospitals; from 1873 to 1875 sanitary superintendent of the Brooklyn Health Department; who retired from practice in 1891; died at St. Legier Sur Verey, Switzerland, February 14, aged 81.

Theodore Gaillard Croft, M.D. Medical College of the State of South Carolina, 1875; a Fellow of the American Medical Association; president of the South Carolina Medical Association in 1901 and 1902; a Confederate veteran; for two terms trustee of his alma mater; for many years local surgeon of the Southern Railroad at Aiken, S. C.; surgeon of the First Regiment South Carolina State Troops for ten years; a member of the State Board of Medical Examiners in 1902; died in the Columbia (S. C.) Hospital, March 10, aged 60.

Waldron Burritt Vanderpoel, M.D. College of Physicians and Surgeons in the City of New York, 1879; a Fellow of the American Medical Association; and a member of the New York bar and New York Academy of Medicine; formerly a member of the staff of the De Milt Dispensary and Randall's Island Hospital; until 1904 a practitioner of New York City; died at his home in Summit, N. J., March 9, from cerebral hemorrhage, aged 60.

Gordon Beriah Hotchkin, M.D. University of Pennsylvania, Philadelphia, 1855; one of the oldest practitioners of Blair County, Pa.; surgeon of the First Pennsylvania Volunteer Cavalry throughout the Civil War; for many years surgeon of the Pennsylvania System at Huntington and Altoona, Pa.; died at his home in Altoona, March 12, a week after a fall in which he sustained a fracture of the hip, aged 81.

George Mylius Babendreier, M.D. Georgetown University, Washington, D. C., 1910; formerly of Washington, D. C.; a Fellow of the American Medical Association; one of the assistant surgeons at the Georgetown University Hospital and a member of the staff of the Washington Asylum Hospital; who had recently moved to Alpena, W. Va.; died at his home in that place, March 7, from tuberculosis, aged 27.

William Britton, M.D. University of Toronto, 1875; for fifteen years representative of his alma mater on the Council of the College of Physicians and Surgeons of Ontario and at one time president of the council; for many years a practitioner of Toronto, but for the last three years a resident of Prince Albert, Sask.; died at the home of his sister in Toronto, March 11, aged 63.

Joseph Francis Bloodgood, M.D. College of Physicians and Surgeons in the City of New York, 1884; a member of the Medical Society of the State of New York and a Fellow of the New York Academy of Medicine; visiting surgeon to the Flushing (N. Y.) Hospital and local surgeon to the Long Island Railroad; died at his home in Flushing, L. I., March 12, from pneumonia, aged 55.

John Chappell Walton, M.D. Louisville (Ky.) Medical College, 1878; formerly a Fellow of the American Medical Association; a member of the Medical Society of Virginia; local neurologist to the Southern Railway at Richmond, Va.; and owner and physician-in-charge of the Walton Sanitarium, Richmond; died in Ridgefield, N. J., March 11, aged 57.

Albert Simon Newcomb, M.D. Albany (N. Y.) Medical College, 1866; a member of the New York Academy of Medicine; formerly medical examiner for the New York Postoffice and local surgeon for the West Shore Railroad; for a time surgeon of the Twenty-Fourth Infantry, N. G., N. Y.; died at his home in Schenectady, March 1, from heart disease, aged 73.

John Calvin Cotton, M.D. Cleveland (Ohio) Medical College, 1853; for many years a practitioner of Meadville, Pa.; surgeon to the Meadville Hospital and health officer of Meadville; who retired after fifty years of practice and moved to Germantown, Philadelphia; died at his home in that place, March 10, from cerebral hemorrhage, aged 86.

Joseph Buchanan Irwin, M.D. Kentucky School of Medicine, Louisville, 1884; a member of the Medical Society of the State of Pennsylvania; for several years a member of the Washington (Pa.) City Hospital; and one time a member of the Washington Board of Education; died at his home in Florence, Pa., March 11, from pneumonia, aged 62.

William T. Davies, Jr., M.D. Medico-Chirurgical College of Philadelphia, 1897; formerly a member of the staff of the Fountain Spring State Hospital, but later a member of the resident staff of the Pennsylvania State Sanatorium for Tuberculosis, No. 1, Mont Alto; died in the latter institution, March 4, from heart disease, aged 42.

Thomas Gay Whims, M.D. University of Maryland, Baltimore, 1911; a member of the Medical Society of the State of North Carolina and a practitioner of Lasker, N. C.; died in the University Hospital, Baltimore, March 4, from sarcoma of the arm, for which two surgical operations had been performed without avail, aged 37.

Paul G. Noack, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1896; a member of the Arkansas Medical Society; died at his home in Bardestown, Ark., March 9, from the effects of a gunshot wound of the head, self-inflicted, it is believed with suicidal intent, while despondent on account of ill health, aged 47.

William B. McDonald, M.D. Medical College of Indiana, Indianapolis, 1873; a Fellow of the American Medical Association; from 1874 to 1876 superintendent of the Indianapolis City Hospital and for thirty-eight years a practitioner of Indianapolis; died at his home in New Augusta, Ind., March 14, from diabetes, aged 63.

William Xavier Sudduth, M.D. Medico-Chirurgical College of Philadelphia, 1885; for many years a practitioner of Chicago, but for the last few years famous as an expert on alfalfa and a resident of Broadview, Great Falls, Mont.; died in a hotel in Roundup, Mont., March 7, aged 62.

Albert Edward Bolton, M.D. New York University, New York City, 1888; who opened the first medical mission at Port Simpson, B. C., where he labored for fifteen years; later a practitioner of Victoria and Vancouver, B. C.; died at his home in the latter city, Dec. 26, 1914, aged 52.

Annie W. Stauffer, M.D. Eclectic Medical College of the City of New York, 1881; for forty years a practitioner of Cape May, N. J., and Philadelphia; died in the Woman's Homeopathic Hospital, Philadelphia, March 3, two weeks after a fall in which she broke her leg, aged 70.

Curtiss Clark Hoyt, M.D. College of Physicians and Surgeons in the City of New York, 1887; a member of the Connecticut State Medical Society; for many years chief of the fire department of Danbury; died at his home in Bridgeport, Conn., March 5, from heart disease, aged 62.

James P. Hawes, M.D. George Washington University, Washington, D. C., 1872; of Valois, N. Y.; for fifteen years an employee of the treasury department, Washington, D. C.; died in the People's Hospital, Sayre, N. Y., February 24, from disease of the stomach, aged 75.

Will Goldsworthy, M.D. University of Minnesota, Minneapolis, 1897; formerly chief surgeon for the Duluth and Northern Minnesota Railroad at Knife River, Minn., but for the last six years a practitioner of Duluth; died at his home in that city, March 3, aged 39.

David Hyslop Hayden, M.D. Harvard Medical School, 1863; a Fellow of the Massachusetts Medical Society since 1869 and its librarian from 1872 to 1884; assistant surgeon in the Navy during the Civil War; died at his home in Lynn, February 21, aged 75.

Jacob L. Sandoe, M.D. University of Pennsylvania, Philadelphia, 1878; of Cincinnati; for twenty-five years medical examiner for the Pennsylvania Lines West of Pittsburgh; died in the Good Samaritan Hospital, Cincinnati, February 26, from pneumonia, aged 59.

Clement Dietrich O'Leary, M.D. College of Physicians and Surgeons in the City of New York, 1887; until three years ago a practitioner of Providence, R. I.; died in the Rhode Island State Sanatorium, Wallum Lake, Dec. 22, 1914, from tuberculosis, aged 48.

Albert Beekman Mills, M.D. University of Michigan, Ann Arbor, 1897; for fifteen years a member of the medical staff of the Calumet & Hecla Hospital, Calumet, Mich.; died at his home in Calumet, March 5, as the result of a nervous breakdown, aged 42.

Jules Maurice Rosenbloom, M.D. Medico-Chirurgical College of Philadelphia, 1906; of Philadelphia; a member of the Medical Society of the State of Pennsylvania; died in St. Agnes' Hospital, Philadelphia, March 8, after a surgical operation, aged 34.

Hugh L. Ray, M.D. University of Nashville, Tenn., 1881; once president of the Lauderdale County (Ala.) Medical Society; for many years a practitioner of Parker County, Tex.; died at the home of his daughter in Poolville, Tex., March 5, aged 80.

Alfred Schmitz Shadd, M.D. Trinity Medical College, Toronto, 1898; coroner of Prince Albert County, Sask.; and a practitioner of Melfort, Sask.; died in the Winnipeg (Man.) General Hospital, March 9, after an operation for appendicitis, aged 46.

William T. McCarty, M.D. College of Physicians and Surgeons, Chicago, 1902; formerly of Campbellsport, Wis.; but for ten years a practitioner of Miles City, Mont.; died at his home in that city, February 11, from abscess of the brain, aged 39.

Henry Hersch Hart, M.D. Cooper Medical College, San Francisco, 1879; a member of the Medical Society of the State of California; of San Francisco; died suddenly from heart disease, March 5, while assisting at a surgical operation, aged 61.

John George Parrish, M.D. Missouri Medical College, St. Louis, 1872; for more than forty years a practitioner of St. Louis; a special scout in the Confederate service during the Civil War; died at his home in St. Louis, February 27, aged 72.

Gregory G. Bryan, M.D. Washington University, St. Louis, 1896; a Fellow of the American Medical Association and for five years city physician of De Soto, Mo.; died at his home in that city, January 31, from interstitial nephritis, aged 45.

John Willis Fowler, M.D. University of Michigan, Ann Arbor, 1884; of Dubuque, Ia.; at one time secretary of the Tri-State Medical Society and city physician of Dubuque; died at his home in that city, March 4, from pneumonia, aged 55.

Clarissa E. Cooke, M.D. Hahnemann Medical College, Chicago, 1896; a member of the Ohio State Medical Association and formerly a practitioner of Portsmouth, Ohio; died at her home in St. Paul, Minn., Dec. 6, 1914, aged 51.

John A. Rupp, M.D. Tulane University, New Orleans, 1900; assistant coroner of Orleans Parish, La., for more than twelve years and a resident of Algiers, La.; died at his home in that city, February 27, from pneumonia, aged 36.

David Polk Juett, M.D. Jefferson Medical College, 1857; surgeon of the Seventh Kentucky Cavalry, C. S. A., during the Civil War; founder of the Paducah (Ky.) Infirmary; died at his home in Blandville, Ky., March 7, aged 78.

Percy N. Richardson, M.D. Meharry Medical College, Nashville, Tenn., 1892; a member and once president of the Florida State Medical Association of Colored Physicians; died at his home in Jacksonville, Fla., February 18.

David Paul Swisher, M.D. Jefferson Medical College, 1892; a physician and druggist of Darby, Pa.; for several years borough secretary; died in the Jefferson Hospital, Philadelphia, March 3, from pneumonia, aged 46.

George Post, M.D. New York University, New York City, 1885; of Ovid, N. Y.; who had been under treatment in the Willard State Hospital, is said to have committed suicide by hanging at his home in Ovid, March 5, aged 52.

E. M. McComas (license, Nebraska, 1891), a practitioner and druggist of Brownville, Neb., for many years; for four years probate judge of Nemaha County, Neb.; died at his farm home near Brownville, March 7, aged 90.

Hugh W. Love, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1880; formerly a member of the Medical Society of the State of Pennsylvania; died at his home in Harrison City, Pa., March 6, aged 61.

Emery Herschell Leyman, M.D. University of Michigan, Ann Arbor, 1871; for many years local surgeon to the Wabash Railroad at Huntington, Ind.; died at his old home in Patmos, Ohio, March 4, from influenza, aged 47.

William Prankard, M.D. Eclectic Medical College of the City of New York, 1871; a practitioner of Brooklyn for more than thirty years; died at his home in South Brooklyn, N. Y., March 9, from senile debility, aged 83.

Andrew Slaght, M.D. University of Michigan, Ann Arbor, 1868; for more than forty-five years a practitioner of Grand Blanc, Mich.; died at his home in that place, February 22, from cerebral hemorrhage, aged 82.

James Burton Sharp, M.D. Memphis Hospital Medical College, 1901; a member of the Missouri State Medical Association; died at his home in Senath, Mo., from an overdose of cannabis indica, aged 43.

Emil H. Scharnberg, M.D. University of Louisville, Ky., 1890; formerly local surgeon of the Missouri, Kansas and Texas System at New Ulm, Tex.; died at his home in Coupland, Tex.; March 7, aged 47.

John M. Gwinner, M.D. University of Pennsylvania, Philadelphia, 1881; for twenty-five years a practitioner of Centralia, Pa.; died at his home in Mechanicsville, near Pottsville, Pa., March 7, aged 57.

William G. Brownell, M.D. New York Homeopathic Medical College, New York City, 1879; died at his home in Rochester, N. Y., recently, aged 60.

Pierre Clement Tircuit, M.D. Tulane University, New Orleans, 1869; for forty years a practitioner of St. James' Parish, La.; died at the home of his daughter in Abbeville, La., February 14, aged 77.

Mary A. Shepherd, M.D. Hahnemann Medical College, Chicago, 1887; a practitioner and for four years postmistress of Wimmers, Pa.; died suddenly in Sterling, Pa., March 7, from pneumonia, aged 75.

Daniel W. McGee, M.D. Missouri Medical College, St. Louis, 1872; of Mountain Grove, Mo.; a member of the Missouri State Medical Association; died in Springfield, Mo., March 8, aged 58.

Merritt G. Witter, M.D. St. Louis College of Physicians and Surgeons, 1892; of Tonkawa, Okla.; died in the Wichita (Kan.) Hospital, February 24, from carcinoma of the stomach, aged 75.

William Henry Stephens, M.D. Meharry Medical College, Nashville, Tenn., 1898; a practitioner of Chattanooga, Tenn., for seventeen years; died in that city, March 4, from myocarditis, aged 37.

Archibald Montgomery, M.D. University of Toronto, Ont., 1892; a practitioner of the Peace River District, Alberta; died at the home of his parents in Toronto, March 9, from heart disease.

Lawrence Lonzo Swogger, M.D. Rush Medical College, 1902; a Fellow of the American Medical Association; died at his home in New Bedford, Pa., March 8, from pneumonia, aged 38.

Lee Dreisbach, M.D. Kentucky School of Medicine, Louisville, 1884; of Collinston, La.; died in New Orleans, February 26, two weeks after a surgical operation, aged 52.

William Ledmon Allen, M.D. University of Buffalo, 1875; formerly of Syracuse and Auburn, N. Y.; died at his home in North Tonawanda, N. Y., February 17, aged 67.

Helier Noel Coutlee, M.D. Queens University, Kingston, Ont., 1882; of Sharbot Lake, Ont.; died in the Kingston (Ont.) General Hospital, Dec. 8, 1914, aged 57.

David E. Archer, M.D. Homeopathic Medical College of Missouri, St. Louis, 1890; of Greeley, Colo.; died at his old home in Amsterdam, Mo., February 1, aged 50.

Elmer Bertram Holst, M.D. Toledo (Ohio) Medical College, 1896; of Rossford, Ohio; died in the East Side Hospital, Toledo, February 22, from nephritis, aged 39.

William S. Hendricks, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1875; died at his home in Chicago, March 6, following a prostatectomy, aged 64.

Michael Lorenz (license, Illinois, years of practice, 1879), for forty-five years a practitioner of Chicago; died at his home in that city, March 5, aged 74.

Oscar Rosenoen Lanng, M.D. University of Copenhagen, Denmark, 1870; an oculist of New Orleans; died at his home in that city, February 20, aged 79.

David C. Fouts (license, Indiana, 1900), formerly of New Salisbury, Ind.; died suddenly at his home in Georgetown, Ind., Dec. 19, 1914, aged 70.

William Leonard Birney, M.D. Missouri Medical College, St. Louis, 1879; died at his home in Rantoul, Kan., February 27, from paralysis, aged 76.

Marion S. Hawkins, M.D. University of Nashville, Tenn., 1878; of Nashville; died at the home of his niece in that city, February 25, aged 59.

William J. Gardner, M.D. University of Pennsylvania, Philadelphia, 1893; died at his home in McKeesport, Pa., February 24, aged 44.

Calvin Hathaway, M.D. Cincinnati College of Medicine and Surgery, 1863; died at his home in Edgerton, Ohio, Dec. 31, 1914, aged 75.

William T. Nash, M.D. Medical College of Georgia, Augusta, 1886; died suddenly at his home in Philomath, Ga., February 16.

Charles H. Doss, M.D. Eclectic Medical Institute, Cincinnati, 1873; died at his home in Pittsfield, Ill., recently, aged 81.

Gideon Lanning Barber, M.D. Hering Medical College, Chicago, 1894; died at his home in Chicago, Dec. 27, 1914, aged 71.

J. M. Hoey (license, West Virginia, years of practice, 1881) died at his home in Clarksburg, W. Va., March 2, aged 69.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

NEURILLA

Report of the Council on Pharmacy and Chemistry

The following report was adopted by the Council. Its publication was authorized to show how a practically worthless mixture may be exploited by means of ill-considered testimonials. W. A. Puckner, Secretary.

Neurilla, which appears to be the sole product of the Dad Chemical Company, New York, is advertised as

> "The Ideal Nerve Calmant."
> ". . . a nerve tonic . . . indicated in cases where the nerve centers are poorly nourished and over-sensitive . . ."
> ". . . a stimulant to the nervous system."
> "A Valuable Aid in the Treatment of Fevers, Colds, La Grippe, etc."

The following non-quantitative and indefinite formula is given on the label of a recently purchased bottle of Neurilla:

> "Prepared from Scutellaria Lateriflora, Passiflora Incarnata and Aromatics."
> "Proportion of Alcohol 20.3%.
> "Made by Dad Chemical Co., New York, U. S. A.
> "Dose, One Teaspoonful Four Times a Day."

According to the formula, then, this mixture contains, aside from alcohol and aromatics, two vegetable drugs, scutellaria and passiflora, on which the alleged virtues of the preparation must be presumed to depend.

Scutellaria lateriflora, or skullcap, is a bitter drug, one of the many "herbs" to which, on wholly unreliable "clinical evidence," therapeutic properties were at one time ascribed. Most pharmacologists do not mention the drug, and those who do, generally state that it has very feeble therapeutic properties. It was admitted to the Pharmacopeia, but in 1909 its deletion was recommended by a committee of the Section on Practice of Medicine of the American Medical Association (The Journal A. M. A., Sept. 4, 1909, p. 792). We understand that the next edition of the Pharmacopeia will omit mention of skullcap.

Passiflora incarnata, or passion-flower, is another "herb," which, although known for about seventy years, has never gained the confidence of the medical profession and has not even been admitted to the Pharmacopeia. According to a Council Report:

"None of the evidence is sufficient to show that passiflora has therapeutic value; hence it is deemed inadvisable to include the drug in the list of nonofficial remedies" (The Journal A. M. A., March 19, 1910, p. 983).

On these two obsolescent "herbs," then, rest the remarkable claims made for Neurilla. A certain degree of appetizing effect may be expected from the bitter taste and a very slight degree of physical stimulus from the alcohol. Except for these effects—and they are largely delusive and temporary—the preparation is therapeutically inert and worthless.

The evidence on which the manufacturers of Neurilla base their therapeutic claims appears to consist of testimonials from physicians. As a matter of fact, this is true of practically all of the large group of nostrums of which Neurilla is typical. An analysis of these Neurilla testimonials brings out clearly what such "evidence" is worth.

ILL-CONSIDERED TESTIMONIALS

The testimonials for Neurilla have been given with reference to indefinite conditions of nervousness that border on the psychic and include hysteria, neurasthenia, neuralgia and the like. Nervousness and indigestion are two diseases in which suggestion, especially when aided by bitters and alcohol, produces temporarily a feeling of improvement. As an illustration, take the following testimonial:

> "But more striking was the following case: One evening between 5 and 6 o'clock I was sent for, family lives near me, and I was informed that the young lady had promised to be bridesmaid, a function she had never performed. Her mother said the daughter would certainly drop in her tracks as she walked up to the altar with the procession, and they had about concluded to send a note saying to the parents of the bride that she could not come, although that would be very disagreeable (and no less offensive, said I). They agreed with me. I ordered Neurilla for two hours. She went to church, and, I was informed the next morning, passed through the dreaded ordeal simply fatigued, and was now fast asleep on account of the nice effect of Neurilla."

It might provoke a smile to think that a manufacturer would publish so silly a testimonial were it not that the very fact of its publication indicates that there are medical men thoughtless enough to read and accept such stuff as reliable evidence as to the value of any product.

TESTIMONIALS GIVEN LONG AGO—THE REMEDY ABANDONED

A number of physicians who had given testimonials were asked in writing whether the testimonials were genuine and whether they still entertained the high opinion of Neurilla expressed at a former date. Several replied that, if they had ever given such testimonials, they had forgotten the circumstance. From the replies received we select the following:

The testimonial which bears Dr. A's name reads:

"I am using Neurilla with most satisfactory results."

Dr. A now says:

"As to its positive value as a therapeutic agent I have not used it enough to know . . . If the language you quote . . . appears as given in or as a 'testimonial' it must in some way be garbled and appears wholly without my knowledge or consent."

Dr. B is quoted as having written:

"I do not often lend my influence to furthering the fame of a proprietary remedy, but I have achieved such excellent results from the use of Neurilla as a calmative in hysteria and other nervous disorders, that I feel its manufacturers are entitled to an acknowledgment of gratitude from me."

Dr. B writes:

"I have not prescribed a dose of the nostrum in years. The use of my name in connection with Neurilla is unauthorized."

Dr. C once wrote:

"I have used Neurilla with good results."

Dr. C now writes:

"In re 'Neurilla' I think I used the preparation once or twice and it seemed to do good work, but if due to the preparation or other influences, I am not able to verify. I have not used it since nor will, as I am opposed to using these preparations except in certain cases where the ℞ contains remedies whose value I have verified under the most rigid tests.

. . . .

"P. S. This testimonial must have been given many years ago."

Dr. D's testimonial is admitted to be based on a single case:

"I am using Neurilla in a bad case of neuralgic tic with very good results on an aged lady. She has taken several bottles, and is still taking it with very good results."

Dr. D sums up his later experience by saying:

"I have long since abandoned the use of Neurilla in practice."

The following bears Dr. E's name:

"I endorse Neurilla without hesitation. It meets all indications for which it is intended."

This is what Dr. E writes now:

"As to the enclosed testimonial in regard to Neurilla said to be written by me I have no recollection. I am not prescribing Neurilla."

Dr. F's experience is similar. The testimonial credited to him reads:

"I have prescribed Neurilla in nervous disorders with good results."

Dr. F now writes:

"I don't remember of ever having prescribed 'Neurilla' or of having given a testimonial for it or any other patent medicine if I knew it to be so."

SUMMARY

In the booklet from which the foregoing are taken, there are forty testimonials. Those which we quote are merely samples. To sum up the results of this analysis: Of the testimonials some are said to be unauthorized; a number were written with so little thought that the writers had since forgotten their very existence; the conclusions expressed in most are not in fact justified by the writers' mature judgment and experience. A number of writers admit that their experience is insufficient to determine whether the supposed good results were due to the medicine used or to other influences. Of course such evidence is unworthy of credit and happily, very little is now being furnished by doctors; even our courts refuse to admit it.

In short, the published formula shows that Neurilla is nothing more than a preparation of discredited drugs; it is exploited largely by means of carelessly formed and thoughtlessly expressed opinions of physicians. It is recommended that this report be published as an illustration of such methods and as a protest against them.

[Editorial Comment.—Neurilla is advertised in the following publications:

Archives of Pediatrics,
Atlanta Journal Record of Medicine,
Charlotte Medical Journal,
Indianapolis Medical Journal,
International Journal of Surgery,
Journal of Nervous and Mental Diseases,
Medical Herald,
New York Medical Record,
Medical Review of Reviews,
Medical Sentinel,
Medical Standard,
Pacific Medical Journal,
Southern Practitioner,
Texas Medical Journal,
Woman's Medical Journal.
Eclectic Medical Journal,
Ellingwood's Therapeutist,
Journal of the American Institute of Homeopathy.]

DR. GUERTIN'S NERVE SYRUP

Another Member of the Epilepsy Cure Fraud Family

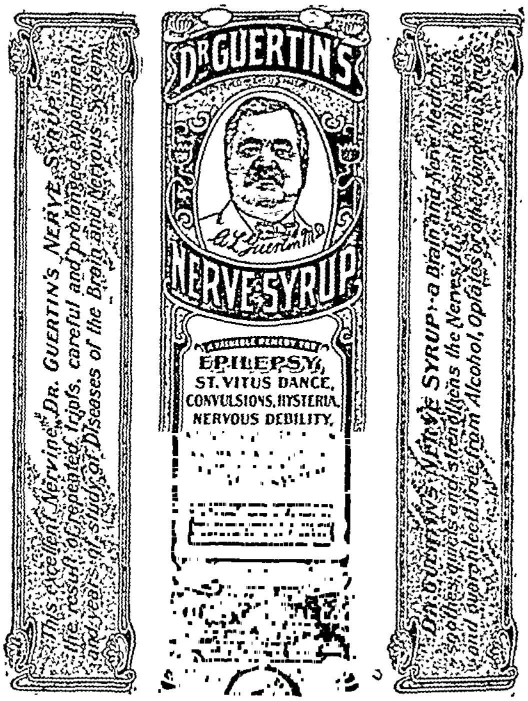
Dr. Guertin's Nerve Syrup is sold by a Cincinnati concern, the Kalmus Chemical Company, or, as it has been termed, the Otto Kalmus Chemical Company. Each carton of the nostrum bears a picture of an apparently well-fed but not otherwise prepossessing individual under which, in autograph style, is the name "A. L. Guertin, M.D."

Before discussing Guertin's Nerve Syrup it will be profitable to review an older chapter of Cincinnati quackery. For some years previous to 1908 one Otto Kalmus of Cincinnati conducted a medical mail-order fraud known as the Epileptic Institute. In 1908 the postoffice officials put the concern out of business by denying it the use of the mails. After the issuance of the fraud order an attempt was made to evade its effects by conducting the business under the name Hamilton Dispensary. The fraud order was extended to cover the new name and a quietus was finally put on the mail-order business.

Kalmus' scheme was to advertise that he could cure epilepsy by remedies unknown to medical science and termed by him the "Schönka treatment." The government proved that his remedies were in fact the bromids with adonis vernalis, and the federal inspectors were unable to learn of any "cures" that had been effected. They did come across some cases in which the victims had become so seriously affected by the bromids that the "treatment" had to be discontinued and the unfortunates confined in state institutions.

Kalmus further claimed that he had connected with his "institute" trained and skilled specialists including one of the foremost examining specialists in America. Investigation disclosed that there had been connected with the "institute," at different times since its inception, three physicians, E. H. Schoenling, H. J. Luecke and A. L. Guertin. Kalmus himself was not a physician and had no medical education. The government report declared that Schoenling had made no special study of epilepsy, that he had worked most of the time since his graduation for a "men's specialist" quack, and that he was not a member of any reputable medical society; it declared, also, that Luecke was not a specialist in epilepsy, that while he was paid a paltry salary for his service to the "institute" his regular business was that of an advertising "specialist" whose advertisements had been excluded from the Cincinnati papers because they related to the sale of abortifacients and the performing of criminal operations. Before his connection with the Kalmus concern, Luecke seems to have been employed by a "men's specialist" outfit, the Bradford Medical Institute and also to have bought out another quack concern.

As to A. L. Guertin, the report declared he received $35 a month for his services to the Epileptic Institute, his professional standing was questionable, he admitted that he was not a specialist and that he had little or no practice in Cincinnati and he had been shown previously to have sold a testimonial to a fraudulent concern and afterward repudiated it. From a report sent in from Zanesville, Ohio, recently, it appears that one Alfred L. Guertin is connected with a quack organization calling itself the United Doctors.


"This excellent Nervine" Dr. GUERTIN'S NERVE SYRUP, is the result of repeated trials, careful and prolonged experiment and years of study of Diseases of the Brain and Nervous System
DR. GUERTIN'S
A. L. Guertin M.D.
NERVE SYRUP
A VALUABLE REMEDY FOR
EPILEPSY,
ST. VITUS DANCE,
CONVULSIONS, HYSTERIA,
NERVOUS DEBILITY.
Dr. GUERTIN'S NERVE SYRUP, a Brain and Nerve Medicine, soothes, quiets and strengthens the Nerves. It is pleasant to the taste and guaranteed free from Alcohol, Opiates or other dangerous drugs.

Reduced reproduction of Dr. Guertin's Nerve Syrup, a fraudulent "patent medicine" sold as a cure for epilepsy.

So much for Otto Kalmus' fraudulent Epileptic Institute and his assistants, Luecke, Guertin, *et al.* The details of this case have been well set forth elsewhere.[1] Dr. Guertin's Nerve Syrup, the subject of the present article, is sold under such claims as:

> "It stops Fits and Convulsions promptly."
>
> ". . . is guaranteed harmless. . ."
>
> ". . . the first few doses have stopped the attacks in the most distressing cases of Epilepsy. . ."
>
> "It is well named 'The Sunshine for Epileptics.'"
>
> "This excellent Nervine is the result of repeated trials, careful and prolonged experiments and years of observation of its effect in the diseases for which it is recommended. It reflects the best thought of the day."
>
> "There is nothing better in the world for this obscure disease."

In addition to letters and circulars sent to prospective purchasers, the Kalmus Chemical Co. also sends out the inevitable booklet without which no fraudulent "cure for fits" is complete. True to type this publication contains, besides the usual farrago of pseudo-scientific nonsense, horrific pictures of unfortunate epileptics in various unpleasant contortions.

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[1] "Nostrums and Quackery," Second Edition, pp. 348-364; also in the pamphlet, "Medical Institutes," published by the American Medical Association, price 10 cents.

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Ammonia (NH_3) (by weight).........	0.38 per cent.
Calcium (Ca^{++}) (by weight).......	0.10 per cent.
Potassium (K^{+}) (by weight).........	2.47 per cent.
Sodium (Na^{+}) (by weight)..........	1.00 per cent.
Strontium (Sr^{++}) (by weight)	0.40 per cent.
Bromid (Br^{-}) (by weight)..........	11.43 per cent.
Chlorid (Cl^{-}) (by weight)...........	0.20 per cent.
Sugar (Sucrose) (by weight).........	34.44 per cent.

Essentially each 100 c.c. of the solution contains 2.9 grams ammonium bromid, 1.5 grains strontium bromid, 0.9 grams calcium bromid, 10.9 grams potassium bromid, 4.5 grams sodium bromid, with 45.9 grams sugar. Calculating from the bromid determinations each dose, 1 to 2 teaspoonfuls (1 to 2 fluid drams) contains the equivalent of 13.9 to 27.8 grains potassium bromid, and the daily dose (4 to 8 teaspoonfuls) corresponds to 55.6 to 111.2 grams potassium bromid.

Bromids, of course—although the public is not apprised of the fact. "Harmless" it is said to be, although it possesses all the potency for harm that resides in secret mixtures of the bromids. Dosage? Left, as usual, practically in the hands of the person who takes it:

> "If the doses as given on the bottle do not bring the attacks under control, increase the quantity. . ."

Firm in the belief that the preparation is what the exploiters claim, "a mild and harmless nervine," ignorant of the presence of the bromids, the sufferer is dosed into physical and mental inactivity. Such must be the inevitable result of the indiscriminate use of "Dr. Guertin's Nerve Syrup" which is not a "safe and dependable remedy for all nervous diseases" as claimed, but is an unsafe and fraudulent nostrum.

Correspondence

Bureau of Clinical Information in New York

To the Editor:—Dr. Jasper's letter (The Journal, Jan. 9, 1915, p. 168) has just come to my notice. He regrets a lack of organization in New York's advantages for clinical study.

The New York men have the same regret, and have organized a society to place the city's clinical facilities within the reach of any who desire to take advantage of them.

This society is called the Society for the Advancement of Clinical Study in New York. A bulletin is published each day which announces the clinics and the kind of operations, or in case of medical clinics, the cases which will be shown. This daily bulletin will be sent to any resident or visiting physician for a nominal sum and is delivered in each morning's first mail. The average number of operations thus posted is about 150 a day. An information bureau is conducted by this society at the Academy of Medicine, 17 West Forty-Third Street, and during a part of each day a clerk gives such information as is desired, and during the entire day the bulletins are accessible to all who care to see them. The surgical and medical men of New York are delighted to welcome visitors to the hospitals where they work, and will show them every possible courtesy.

Charles N. Dowd, M.D., New York,
Chairman, Executive Committee.

The Country Physician

To the Editor:—In almost every number of The Journal there may be found some reference to the "country physician," usually in a slighting way, written by some of our more enlightened (?) city brothers. I am a country physician, and am not ashamed to say it. I wonder if our city brothers think they are the only ones to get the advantage of newer and more up-to-date methods? I should like to take some of these men along on one of my trips through the country and show them what we have to contend with in our practice; maybe they would then have more respect for country practitioners. When we have a serious case of childbirth or a surgical case, etc., can we take the patient to a hospital immediately and have skilled men to help us? No; perhaps we are miles from a hospital and other physicians, and must do the best we can under circumstances where the city men might be lost and unable to proceed in the unfamiliar surroundings. As for the country man's cases, both medical and surgical, I think that if one would look through some city men's cases one would find more to make fun of than in the country man's case. I always have respect for the country man, not because I am one myself but because I know the conditions he has to contend with, and know if a good many of these city men who write about us were suddenly transplanted to the country they would be as much at sea as the proverbial "hayseed" would be in the big city.

L. H. Flancher, M.D., Lomira, Wis.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BAKING POWDERS

To the Editor:—I wish you would give me some information concerning the purity and composition of the baking powders. I refer especially to the following: Calumet, Royal, Rumford and White Ribbon. The last one is being pushed by the local organization of the Women's Christian Temperance Union. The claim is that it is purer.

My wife has used Royal more extensively than the others, and says that she cannot get as good results with the others. There is such a difference in price that I wish to make inquiry.

One of our grocers says that the Royal Baking Powder is sold to the government for 8 cents a pound. Do you know about this?

I wish to ask also if alum, in any form, is injurious in the baking powders.

I have no financial interest in the baking powder business, but I make this inquiry purely from my interest in the subject, and because a large number of questions have been asked concerning this subject.

H. H. Johnson, M.D., Ypsilanti, Mich.

Answer.—In general, baking powders consist of a carbonate or bicarbonate from which carbon dioxid is liberated by the action of a second substance, the so-called "acid" ingredient, when the powder comes in contact with moisture. For the carbonate, sodium bicarbonate (baking soda) is used, and for the acid constituent one of three substances is used, namely, (1) potassium acid tartrate (cream of tartar), (2) calcium acid phosphate, and (3) alum (potassium aluminum sulphate—potash alum, ammonium aluminum sulphate—ammonia alum or sodium aluminum sulphate—soda alum). Potassium aluminum sulphate and ammonium aluminum sulphate are rarely used in baking powders to-day. Baking powders containing tartrate introduce potassium sodium tartrate into the bread; those containing phosphate introduce calcium phosphate and sodium phosphate, and those containing alum introduce aluminum hydrate, sodium sulphate and either potassium or ammonium sulphate, according to whether potassium or ammonium alum was used. Much has been written on these residual substances left in bread by baking powders, and especially, pro and con, regarding the harmfulness of alum; but up to the present, the question is still an open one. In some states alum is required to be especially declared on labels. Some brands of baking powder contain small amounts of egg albumin. The use of albumin in baking powders is of no value in the production of gas. Its principal use appears to be to make tests in demonstrations before dealers, consumers, etc. These tests, it is claimed, enable the purchaser to deter-

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[2] This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

SUMMARY

In the booklet from which the foregoing are taken, there are forty testimonials. Those which we quote are merely samples. To sum up the results of this analysis: Of the testimonials some are said to be unauthorized; a number were written with so little thought that the writers had since forgotten their very existence; the conclusions expressed in most are not in fact justified by the writers' mature judgment and experience. A number of writers admit that their experience is insufficient to determine whether the supposed good results were due to the medicine used or to other influences. Of course such evidence is unworthy of credit and happily, very little is now being furnished by doctors; even our courts refuse to admit it.

In short, the published formula shows that Neurilla is nothing more than a preparation of discredited drugs; it is exploited largely by means of carelessly formed and thoughtlessly expressed opinions of physicians. It is recommended that this report be published as an illustration of such methods and as a protest against them.

[Editorial Comment.—Neurilla is advertised in the following publications:

Archives of Pediatrics,
Atlanta Journal Record of Medicine,
Charlotte Medical Journal,
Indianapolis Medical Journal,
International Journal of Surgery,
Journal of Nervous and Mental Diseases,
Medical Herald,
New York Medical Record,
Medical Review of Reviews,
Medical Sentinel,
Medical Standard,
Pacific Medical Journal,
Southern Practitioner,
Texas Medical Journal,
Woman's Medical Journal.
Eclectic Medical Journal,
Ellingwood's Therapeutist,
Journal of the American Institute of Homeopathy.]

DR. GUERTIN'S NERVE SYRUP

Another Member of the Epilepsy Cure Fraud Family

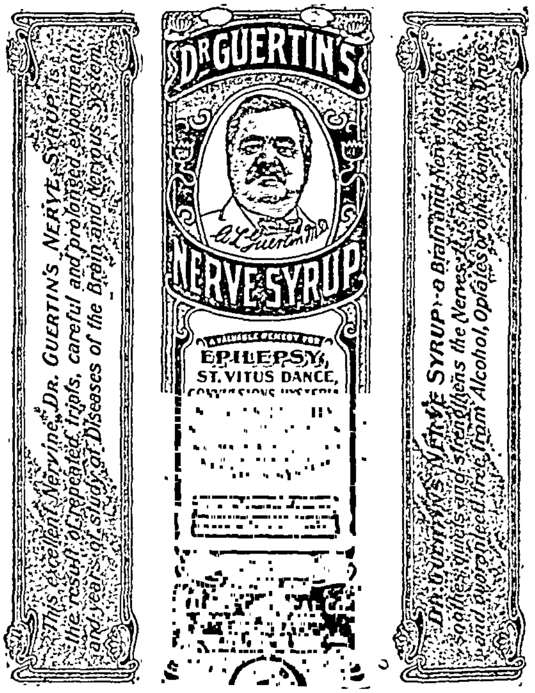
Dr. Guertin's Nerve Syrup is sold by a Cincinnati concern, the Kalmus Chemical Company, or, as it has been termed, the Otto Kalmus Chemical Company. Each carton of the nostrum bears a picture of an apparently well-fed but not otherwise prepossessing individual under which, in autograph style, is the name "A. L. Guertin, M.D."

Before discussing Guertin's Nerve Syrup it will be profitable to review an older chapter of Cincinnati quackery. For some years previous to 1908 one Otto Kalmus of Cincinnati conducted a medical mail-order fraud known as the Epileptic Institute. In 1908 the postoffice officials put the concern out of business by denying it the use of the mails. After the issuance of the fraud order an attempt was made to evade its effects by conducting the business under the name Hamilton Dispensary. The fraud order was extended to cover the new name and a quietus was finally put on the mail-order business.

Kalmus' scheme was to advertise that he could cure epilepsy by remedies unknown to medical science and termed by him the "Schönka treatment." The government proved that his remedies were in fact the bromids with adonis vernalis, and the federal inspectors were unable to learn of any "cures" that had been effected. They did come across some cases in which the victims had become so seriously affected by the bromids that the "treatment" had to be discontinued and the unfortunates confined in state institutions.

Kalmus further claimed that he had connected with his "institute" trained and skilled specialists including one of the foremost examining specialists in America. Investigation disclosed that there had been connected with the "institute," at different times since its inception, three physicians, E. H. Schoenling, H. J. Luecke and A. L. Guertin. Kalmus himself was not a physician and had no medical education. The government report declared that Schoenling had made no special study of epilepsy, that he had worked most of the time since his graduation for a "men's specialist" quack, and that he was not a member of any reputable medical society; it declared, also, that Luecke was not a specialist in epilepsy, that while he was paid a paltry salary for his service to the "institute" his regular business was that of an advertising "specialist" whose advertisements had been excluded from the Cincinnati papers because they related to the sale of abortifacients and the performing of criminal operations. Before his connection with the Kalmus concern, Luecke seems to have been employed by a "men's specialist" outfit, the Bradford Medical Institute and also to have bought out another quack concern.

As to A. L. Guertin, the report declared he received $35 a month for his services to the Epileptic Institute, his professional standing was questionable, he admitted that he was not a specialist and that he had little or no practice in Cincinnati and he had been shown previously to have sold a testimonial to a fraudulent concern and afterward repudiated it. From a report sent in from Zanesville, Ohio, recently, it appears that one Alfred L. Guertin is connected with a quack organization calling itself the United Doctors.


"This excellent Nervine" DR. GUERTIN'S NERVE SYRUP is
the result of repeated trials, careful and prolonged experiment,
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DR. GUERTIN'S
A. L. Guertin M.D.
NERVE SYRUP
EPILEPSY,
ST. VITUS DANCE,
DR. GUERTIN'S NERVE SYRUP—a Brain and Nerve Medicine
soothes quiets and strengthens the Nerves. It is pleasant to the taste
and guaranteed free from Alcohol, Opiates or other dangerous Drugs.

Reduced reproduction of Dr. Guertin's Nerve Syrup, a fraudulent "patent medicine" sold as a cure for epilepsy.

So much for Otto Kalmus' fraudulent Epileptic Institute and his assistants, Luecke, Guertin, *et al.* The details of this case have been well set forth elsewhere.[1] Dr. Guertin's Nerve Syrup, the subject of the present article, is sold under such claims as:

> "It stops Fits and Convulsions promptly."
>
> ". . . is guaranteed harmless. . ."
>
> ". . . the first few doses have stopped the attacks in the most distressing cases of Epilepsy. . ."
>
> "It is well named 'The Sunshine for Epileptics.'"
>
> "This excellent Nervine is the result of repeated trials, careful and prolonged experiments and years of observation of its effect in the diseases for which it is recommended. It reflects the best thought of the day."
>
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Recent investigations having shown that the ingestion of tartaric acid might cause kidney irritation, although evidence has been offered that in the quantities taken such effects are unlikely, the findings are used by opposing baking powder firms as an argument against the use of the tartrate baking powders.

As to the composition of the powders to which you refer: We have no information in reference to the composition of the White Ribbon brand of baking powder.

According to an analysis by the North Dakota Food Department in 1913, Calumet Baking Powder is a combination of the alum and phosphate types, containing about 13.4 per cent. of available carbon dioxid and about 38.4 per cent. of starch. It is said also to contain egg albumin.

Royal Baking Powder is of the cream of tartar type. Analyses by the North Dakota Food Department showed about 12 per cent. of available carbon dioxid and 27 per cent. of starch.

Rumford Baking Powder is of the acid phosphate type. The analyses by the North Dakota Food Department showed about 11.3 per cent. of available carbon dioxid, but did not state the amount of starch present.

ARTICLES ON PERSONAL HYGIENE

To the Editor:—Please inform me of articles containing suitable material for a paper on personal hygiene to a Y. M. C. A. or college class.

J. I. B.

Answer.—Following is a list of articles on the subject:

Shumacker, Leopold, and Middleton, W. S.: The Cardiac Effects of Immoderate College Athletics, The Journal, April 11, 1914, p. 1136.
The Hygiene of Athletic Sports—Rowing, editorial, The Journal, April 11, 1914, p. 1172.
Athletics and Health, editorial, The Journal, Feb. 8, 1913, p. 446.
College Athletics in After Life, Miscellany, The Journal, Jan. 25, 1913, p. 300.
Friedman, H. M.: Muscular Development, the Causes for the Lack of It, and the Value of Physical Exercise, The Journal, March 9, 1912, p. 685.
Zenner, P.: Education in Sexual Physiology and Hygiene, Cincinnati, Robert Clark & Co., $1.
Hall, W. S.: Reproduction and Sexual Hygiene (written especially for college students), Chicago, Wynnewood Publishing Company, $1.
Morrow, P. A.: Social Disease and Marriage, Philadelphia, Lea & Febiger, $3.

LITERATURE ON DEFERRING OF OLD AGE

To the Editor:—I am to prepare a paper on old age deferred. Please tell me where I can obtain the best works on this topic, or give the title or publisher.

William E. Whitney, M.D., Eldora, Iowa.

Answer.—The following is a list of recent papers and books on the subject:

Niles, G. M.: The Dyspepsia of Old Age, *Am. Jour. Med. Sc.*, January, 1911; abstr., The Journal, Feb. 11, 1911, p. 456.
Nascher, F. L.: Geriatrics, *Med. Rec.*, New York, April 20, 1912.
Senility, Therapeutics, The Journal, Aug. 3, 1912, p. 370.
Crichton-Brown: Prevention of Senility, New York, Macmillan Company, $0.75.
Lorand: Old Age, Philadelphia, F. A. Davis Company, $2.50.
Metchnikoff: Prolongation of Life, New York, G. P. Putnam's Sons, $1.75.
Minot: The Problem of Age, Growth and Death, New York, G. P. Putnam's Sons, $2.
Weber: Means for the Prolongation of Life, London, J. Bale Sons & Danielsson.
Saundby: Old Age, Its Care and Treatment, New York, Longmans, Greene & Co.

DOSAGE OF TARTAR EMETIC

To the Editor:—I should like to know if the dose of tartar emetic as quoted in the U. S. Dispensatory is right. The emetic dose is given as ½ grain. I have often given 5 grains without emetic results, but 10-grain doses seem to work very well as a severe nauseating emetic in periodical inebriates. I have used 10-grain doses in such cases for a number of years, with good results. Should one of these habitual debauchees succumb to some intercurrent disease, during a spree some time, could I be held responsible by giving a larger dose than recommended by the U. S. Dispensatory? I have used 10-grain doses for over twenty years in such cases.

Please omit name. X. Y. Z., San Francisco, Cal.

Answer.—The proper dose is from one-half to 1 grain. One and one-half grains have proved fatal, but this case should be regarded as exceptional. Ten grains given at one time would be a dangerous dose, and the same amount in broken doses would be still more so. It is sometimes recommended to give one-half grain, repeated every fifteen minutes for several doses until vomiting is secured. This would probably be a safe and justifiable dosage in certain instances. It is probable that a physician would be held negligent for giving a dose of over 2 grains if toxic effects followed.

INQUIRIES ON THE HARRISON LAW

Prescribing Opium for an Addict

To the Editor:—Does the Harrison antinarcotic law permit a physician to prescribe opium or any of its derivatives to a person addicted to its use?

R. F. D.

Answer.—There is no provision in the Harrison law that limits physicians in prescribing for their patients. As all records are subject to inspection, it would naturally be advisable for the physician to be prepared to justify any of his actions, if necessity arose. The administration of opium or its derivatives in decreasing doses to a drug addict as a part of a course of treatment for the purpose of curing the patient of the habit is undoubtedly permissible. Whether any ruling is possible, under the law, to prevent a physician from furnishing an opium habitué with sufficient quantities of drugs to enable him to continue his drug habit, it is impossible to say at present. Certainly such a procedure on the part of a physician would not be regarded as in accordance with the highest principles of the medical profession, however it might be regarded from a legal standpoint. A physician is justified in using whatever drugs are necessary in an effort to cure a patient of any drug habit; he is not justified in acting as a procurer through whom the drug victim may obtain continued supplies of injurious drugs.

Double Registration Required

To the Editor:—Under the Harrison law, if a doctor sells patents, proprietary and domestic remedies, sundries, stationery, rubber goods, and has his office in connection with his store, does one license cover him?

P. G. K.

Answer.—According to the regulations, a physician carrying on a drug business must register both as a physician and as a druggist. Two licenses would be necessary in the case described by our correspondent.

TREATMENT OF EPILEPSY WITH RATTLESNAKE VENOM

To the Editor:—1. Please tell me where I can procure rattlesnake venom for the treatment of epilepsy.

2. What is the consensus of opinion of the medical profession in regard to this treatment?

Will B. Shore, M.D., Roberts, Mont.

Answer.—1. As our correspondent's address appears with this, he will undoubtedly receive information as to where he can obtain the venom.

2. This treatment has been discussed several times, and condemned, in The Journal. Articles have been published showing that it does not diminish the number of attacks, and in certain cases it has proved dangerous. The following references may be consulted:

Anderson, J. F.: Danger in the Subcutaneous Injection of Solutions of Crotalin, The Journal, March 21, 1914, p. 893.
Jenkins, C. L., and Pendleton, A. S.: Crotalin in Epilepsy, The Journal, Nov. 14, 1914, p. 1749.
Yawger, N. S.: Experience with Crotalin at the Oakburne Epileptic Colony, The Journal, May 16, 1914, p. 1533.
Crotalin in Epilepsy, Correspondence, The Journal, Dec. 12, 1914, p. 2151.
Further Light on the Use of Rattlesnake Poison in Therapy, Editorial, The Journal, March 21, 1914, p. 935.
Rattlesnake Venom in Epilepsy, Queries and Minor Notes, The Journal, March 15, 1913, p. 850.
Rattlesnake-Venom Treatment of Epilepsy, Editorial, The Journal, March 29, 1913, p. 1001.

IDIOSYNCRASY TO MUSTARD AND HORSERADISH

To the Editor:—I am sending you the report of a peculiar case, and perhaps you can tell me the cause. A woman, aged 40, married, mother of five children, troubled occasionally with facial neuralgia, has a distinct idiosyncrasy against mustard and horseradish. She cannot even handle it without getting severe blisters wherever it touches the skin; on eating it, blisters form on lips and tongue and she has all the symptoms of acute gastritis. She has had this peculiarity since childhood. No other plants, such as poison ivy, seem to affect her; but merely the handling of a mustard glass will give her severe blisters.

L. H. Flancher, M.D., Lomira, Wis.

Answer.—Such cases as the foregoing have usually been classified as examples of idiosyncrasy, and have been explained as forms of anaphylaxis.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 6-7. Sec., Dr. John Wix Thomas, Phoenix.

California: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

Colorado: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.

Idaho: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.

Louisiana: Homeopathic, New Orleans, May 3. Pres. Dr. C. R. Mayer, 919 St. Charles St., New Orleans.

Minnesota: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Montana: Helena, April 5. Sec., Dr. William C. Riddell, Helena.

Nevada: Carson City, May 3. Sec., Dr. S. L. Lee, Carson City.

Rhode Island: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

Utah: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

West Virginia: Charleston, April 13. Sec., Dr. S. L. Jepson, 81 12th St., Wheeling.

New York September Report

Mr. Harlan H. Horner, chief of the Examination Division of the New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse, Sept. 22-25, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 187, of whom 120 passed and 67 failed. Nine candidates were licensed through reciprocity, and 9 candidates were granted reregistration licenses. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
University of California	(1907)	1
Yale Medical School	(1911,3) (1912,1) (1914,2)	6
Georgetown University	(1913)	1
George Washington University	(1914)	1
Rush Medical College	(1910)	1
Baltimore Medical College	(1908) (1913)	2
Johns Hopkins University	(1907) (1912,2) (1913) (1914)	5
University of Maryland	(1914)	1
Boston University	(1912)	1
Harvard University	(1902) (1911) (1914)	3
Tufts College Medical School	(1910)	1
Dartmouth Medical School	(1913)	1
Albany Medical College	(1912,1) (1913,3) (1914,7)	11
Columbia Univ. Coll. of Phys. and Surg.	(1912) (1913,3) (1914,9)	13
Cornell University	(1911) (1914,2)	3
Fordham University	(1913,2) (1914,3)	5
Long Island College Hospital	(1913,9) (1914,11)	20
New York Homeo. Coll. and Flower Hosp.	(1913) (1914)	2
Syracuse University	(1912,3) (1914,2)	5
University and Bellevue Hospital Med. Coll.	(1913,5) (1914,3)	8
University of Buffalo	(1913,9) (1914,2)	11
Western Reserve University	(1914)	1
Hahnemann Medical College of Philadelphia	(1913)	1
Jefferson Medical College	(1908) (1914)	2
Medico-Chirurgical College of Philadelphia	(1913)	1
University of Pennsylvania	(1905) (1909) (1913)	3
Woman's Medical College of Pennsylvania	(1912)	1
University of Texas	(1914)	1
University of Vermont	(1912) (1913)	2
University College of Medicine, Richmond	(1904) (1912)	2
Queen's University	(1901) (1912) (1913)	3
McGill University	(1913)	1
FAILED		
Georgetown University	(1913)	1
George Washington University	(1905)	1
Howard University	(1911)	1
Rush Medical College	(1913)	1
Tulane University of Louisiana	(1908)	1
Baltimore Medical College	(1913)	1
College of Phys. and Surgs., Baltimore	(1912)	1
Johns Hopkins University	(1910) (1911)	2
Boston University	(1905) (1912)	2
College of Phys. and Surgs., Boston	(1903)	1
Harvard University	(1908) (1911)	2
Tufts College Medical School	(1905)	1
Albany Medical College	(1910,1) (1913,2) (1914,4)	7
Columbia Univ. College of Phys. and Surgs.	(1911) (1912)	2
Fordham University	(1912) (1913)	2
Long Island College Hospital	(1912) (1913) (1914,4)	6
N. Y. Homeo. M. C. and Flower Hosp.	(1910) (1913,3) (1914,2)	6
New York Medical Coll. and Hosp. for Women	(1913)	1
Syracuse University	(1913,2) (1914)	3
University and Bellevue Hosp. Med. Coll.	(1913) (1914)	2
Eclectic Medical College, Cincinnati	(1914)	1
Jefferson Medical College	(1912) (1914)	2
Medico-Chirurgical College of Phila.	(1912) (1914)	2
University of Pennsylvania	(1913)	1
University of Virginia	(1913) (1914)	2
Marquette University	(1913)	2
Queen's University	(1911)	1
Laval University	(1900)	1
University of Prague, Austria	(1906)	1
University of Jena, Germany	(1910)	1
Royal Hungarian University, Budapest	(1902) (1911)	2
Royal University of Catania	(1912)	1
Royal University of Naples	(1908) (1912) (1913)	3
Royal University of Rome	(1910)	1
University of Geneva	(1913)	1
Syrian Protestant College, Beirut	(1912)	1

College — LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Indiana Medical College	(1907)	Indiana
University and Bellevue Hosp. Med. Coll.	(1913)	New Jersey
Ohio Medical University	(1906)	Ohio
Starling-Ohio Medical College	(1908)	Ohio
Medico-Chirurgical College of Philadelphia	(1901)	New Jersey
Medical College of Virginia	(1909,2) (1911)	Virginia
University College of Medicine, Richmond	(1899)	Virginia

Connecticut Eclectic November Report

Dr. T. S. Hodge, secretary of the Connecticut Eclectic Medical Examining Board, reports that two candidates were licensed through reciprocity at the written examination held at New Haven, Nov. 10, 1914. The following colleges were represented:

College — LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Eclectic Medical University, Kansas City	(1914)	Kansas
Eclectic Medical College, Cincinnati	(1913)	Arkansas

Maine November Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Portland, Nov. 10-11, 1914. The total number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 15, of whom 11 passed and 4 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1914)	87
Medical School of Maine	(1892) 76; (1914)	81
Maryland Medical College	(1912)	82
Boston University	(1914)	82
College of Phys. and Surgs., Boston	(1907) 75; (1913)	79
Harvard University	(1914)	85
Tufts College Medical School	(1913)	82
Long Island College Hospital	(1912)	82
University of Edinburgh	(1902)	95
FAILED		
Medical School of Maine	(1914)	72
University and Bellevue Hospital Medical College	(1906)	77*
University of West Tennessee	(1913)	73
National University of Athens	(1906)	57

College — LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville	(1910)	Kentucky
University Medical College, Kansas City	(1899)	Missouri
Medical College of Ohio	(1890)	Kentucky
University of Vermont	(1913,3)	Vermont

* Conditioned in one subject.

Arizona January Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 5-6, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 4 passed, including 1 osteopath, and 3 failed, including 1 osteopath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
New York Homeopathic Med. Coll. and Flower Hosp.	(1913)	79.9
Vanderbilt University	(1910)	75
McGill University	(1910)	79.1
FAILED		
College of Phys. and Surgs., San Francisco	(1913)	71.1
Columbian Medical College, Kansas City	(1899)	62.7

Book Notices

Differential Diagnosis Presented Through an Analysis of 317 Cases. By Richard C. Cabot, Assistant Professor of Clinical Medicine, Harvard University Medical School. Volume 2. Cloth. Price, $5.50. Pp. 709, with 254 illustrations. Philadelphia: W. B. Saunders Company, 1914.

In this volume, Dr. Cabot offers the second instalment of his collection of medical puzzles, together with his solutions, and comments on methods of diagnosis. The cases are selected to illustrate certain symptoms or prominent physical findings, including abdominal and other tumors, vertigo, diarrhea, dyspepsia, hematemesis, melena, hemoptysis, edema of the face and of the legs, polyuria, fainting, hoarseness, pallor, delirium, ascites and abdominal enlargement. As in the previous volume, each chapter is preceded by diagrams showing how often one may expect to find a given symptom resulting from any one of the several diseases which may cause it. We agree with Dr. Cabot that "a lack of skill in history taking seems to mislead us more often than faulty physical examination," so far as chronic cases are concerned; we believe, however, that in more acute cases, and in those chronic illnesses treated throughout their entire course by the physician, his failure to arrive at a correct diagnosis lies chiefly in neglect of careful physical examination. The great lesson to be gathered from a reading of Dr. Cabot's cases is that an orderly arrangement of facts of history and routine physical and laboratory examination will as a rule point to the probable diagnosis. There are, of course, many instances in which the obtainable evidence is insufficient, and hence the diagnosis remains in doubt. While a limited number of such speculative diagnoses are of didactic value in teaching the limitations of medical skill, we doubt the desirability of including certain of the more indefinite cases in which the conclusions as to diagnosis are necessarily open to question, and where one guess is as good as another. In the main, a perusal of several cases illustrating a given symptom leaves the reader with a clear picture of many of the practical problems of diagnosis which he himself has encountered, and he has a lively sympathy with Dr. Cabot when the carefully thought out diagnosis is discounted by subsequent events. Honest confession is good for the medical soul. A careful reading of this collection of case histories is bound to stimulate the reader to more orderly and complete utilization of the sources of information in the study of his patients.

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So rapid have been the advances of the last two decades in this particular department of medicine that there has been obvious need for gathering the enormous literature into a single volume. The work serves a threefold purpose: It aims to give practitioners and students an account of our present knowledge of infection and immunity; to serve as a guide to the various immunologic methods for laboratory workers, and to outline a course for students. The author says that an attempt has been made not to cover all the literature but to state concisely the well-established facts, and, in the case of more recent subjects, to give the principal references to the literature. The laboratory course given in the book is based on the courses given by the author in the University of Pennsylvania and in the Philadelphia Polyclinic.

The book is well illustrated with numerous striking halftones and colored plates. It is worth while to call attention particularly to figure 23, which illustrates the method of bleeding a guinea pig. Conspicuous in the foreground of this illustration is a large bottle labeled "ether," evidently with the intent of warning off criticism from antivivisectionists. This seems to be rather stretching a point, as most of the immunologic experiments indicated are, without doubt, less productive of pain than the giving of ether as an anesthetic.

The book considers, first, general immunologic technic; second, the principles of infection; third, the principles of immunity and special immunologic technic; fourth, applied immunity in the prophylaxis, diagnosis and treatment of disease, together with specific therapy; and the fifth portion consists of sixty exercises in experimental infection and immunity.

Part I is complete. The student can follow the instructions given, which are explicit and detailed.

Under the heading of infection, Part II, there are two chapters considering all the aspects of virulence and resistance, the various types of toxins, and the course of infection. Probably the most important portion of the book is that devoted to the principles of immunity (Part III); this includes not only a discussion of immunity phagocytosis, opsonins, etc., from a theoretical point of view, but also a large amount of practical material on the preparation of vaccines; their method of administration and the indications for their use; a discussion of antitoxins; a reliable review of the Abderhalden test, and the various methods connected with its development. Separate chapters are devoted to each of the various types of antibodies. The Wassermann test with various modifications and controls is fully discussed and adequately illustrated.

Part IV is wholly practical in its nature and gives to the reader a complete survey of modern methods in the treatment of disease with these new aids. Serum therapy, vaccine therapy and chemotherapy are all adequately treated, and the status of each is fully defined. The book is closed with a well-prepared index.

The one difficulty with the book from a practical point of view would seem to be its cost, which is probably excessive for the average student, especially as these subjects advance so rapidly that the student is continually compelled to supplement his book knowledge by reference to current periodical literature. The practitioner who has not kept abreast of this field will find in it a means of bringing himself wholly up to the times, thus better fitting himself to cope efficiently with the problems in this field.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Sciences. By various writers. First and second editions edited by Albert H. Buck, M.D. Third edition edited by Thomas Lathrop Stedman, A.M., M.D. Vol. IV, complete in 8 volumes. Cloth. Price, $7 net. Pp. 919, with 973 illustrations. New York: William Wood & Co., 1914.

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Miscellany

The Profit and Loss Account of Modern Medicine

Under this title, Dr. Stewart McGuire, of Richmond, Va. (*Southern Med. Jour.*, December, 1914), gave the president's address at the eighth annual meeting of the Southern Medical Association, in Richmond. Dr. McGuire first considered modern medical education. "The most distinct profit and loss in modern medicine," he says, "have come about through changes in medical education which have been accomplished largely through the efforts of the American Medical Association, the Association of American Medical Colleges, and the Carnegie Foundation for the Advancement of Teaching."

As a result of this movement in the last ten years the total number of medical schools in the United States has been reduced from 186 to 101, and the total number of medical students from 28,142 to 16,502.

In its last report the Council on Medical Education says, "The most serious problems of medical education are no longer to be found in the South, but rather in some of the large cities of the East and North."

Dr. McGuire believes that there has not yet been time for the benefit of the change to be very apparent in actual practice, but the lessened number and improved quality of the graduates turned out each year will unquestionably in the end result in a great improvement in the ethics and efficiency of the profession.

The loss account bears as items the fact that many worthy although struggling colleges have been put out of existence and their property practically confiscated, and promising young men have been denied an opportunity to study medicine because of some defect in their preliminary high-school or college education. Furthermore, the modern medical school is not self-supporting and is a heavy financial tax on public funds or private philanthropy. Medical education has ceased to be a business and become a philanthropic work which must be supported by state appropriations and individual benefactions.

Finally, the cost of the modern method of teaching is so great—and it should be remembered that the graduate is a non-producer for a long period of years—that physicians will not settle in the country, but determine to locate in the city; this results in congestion. The remedy for the evil is to make country practice less arduous and more profitable, according to Dr. McGuire.

The modern doctor is compared to the physician of olden times. A physician of the old school was no specialist either in his early or late training, whereas the modern physician is trained almost from the earliest school work for his ultimate vocation. On the whole, we seem to have lost a character dear to literature, and gained a type, perhaps less ethical and more mercenary, but which is certainly a scientific instrument of greater professional efficiency.

In discussing the modern specialists, Dr. McGuire believes that unquestionably the patient is better cared for than formerly. Team work is essential to carry out the modern system of examinations.

Dr. McGuire believes that the laboratory, however, has been placed on too high a pedestal and that it is tyrannizing the clinician. It should be remembered that the best results are obtained by combining laboratory data and clinical findings, each being used to correct the possible error of the other.

Hospitals, too, have advanced. A hospital is now accepted as the safest, most comfortable and most economical place for the seriously sick, and it is also recognized as a local center for the dissemination of knowledge among the public, the training and education of nurses, and the uplift of the profession by the demands made for good records, thorough examinations, accurate diagnoses and rational treatment. The hospital of the future, Dr. McGuire says, should not only care for its patients, but also be a center for medical research, a stimulus for the understanding visitor, and a training-school for nurses, students and doctors.

The modern trained nurse has also been of the greatest importance in advancing the medical profession to its present high status. Medical societies give to the physician educational and professional advantages as well as important social and personal benefit. There is need for a movement to standardize medical associations, and until this is done through the proper channel, the profession should try to minimize the evil by withdrawing its membership from superfluous organizations.

The modern clinic affords means for observation of the work of others, and it has now become the custom for the busy surgeon and physician to devote two or three weeks of the time previously assigned for a vacation to the duty of seeing, at first hand, what his fellows are doing.

"Surgeons, as a rule, attend clinics more frequently than do physicians. This is a pity, for even in a strictly surgical clinic the points of greatest interest are not the methods of operating, but the explanation of symptoms by the pathological conditions found. It is a curious fact that many physicians who would travel miles to see a post-mortem examination will not go around the corner to witness an operation which demonstrates the same changes produced by disease in the living before they are obscured by terminal results. To correct the loss entailed by the failure of the average physician to avail himself fully of the advantages offered by the modern clinic, the internist must learn that to keep abreast of the times it is necessary not only to study but to travel as well."

Finally, Dr. McGuire considers the efficiency of publicity and warns against the teaching of false science, just as in the past, false history and false geography have been taught. He believes, too, that a greater familiarity with scientific facts may result in a loss in feminine character of women. For the present, publicity in medical matters has undoubtedly done good; but unless great care is taken, it is to be feared that a change from the credit to the debit side of the ledger in this regard is to be expected.

Consumption of Milk in the Philippines

According to *Daily Consular and Trade Reports*, the consumption of milk is rapidly increasing in the Philippines, although this is not apparent from the importation values of 1913 as compared with those of 1912. The increase of 1912 over 1911, however, is large, and the increased production and use of fresh milk in 1913 accounts for the difference in the amount imported. Two new dairies near Manila, with comparatively large output, have begun operations within the past two years. The small supply of milk has been heretofore chiefly from the small native cattle and the carabao, neither of which furnish large supplies. The native cows are not well adapted for milk production, and the decrease in their number for some years on account of rinderpest and other cattle diseases has decreased rather than increased the supply, which has been largely provided for by the importation of condensed and evaporated products from abroad. It is said there is now an increased tendency among Filipinos to use milk, and the growing wealth per capita makes this possible. The efforts during the past decade to teach mothers the proper care of their children has also resulted in greater use of milk as a standard food. Two societies have been organized in Manila for the training of mothers in the care of children, and each has a large membership. Five or six training schools for nurses have been established, and these send out large classes yearly. They give instruction in the training of children, urging the freer use of milk. There are practically no fresh milk dairies outside of Manila, and the supply when there is one is from the native cattle, goats or the carabao. The increased consumption is therefore chiefly dependent on imported milk. Prices for dairy products in and near Manila are about as follows: cow's milk, from 15 to 25 cents per liter (quart); cream, 25 cents per half pint; carabao milk, undiluted, from 12 to 17 cents, diluted, from 10 to 12 cents per liter.

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In discussing the modern specialists, Dr. McGuire believes that unquestionably the patient is better cared for than formerly. Team work is essential to carry out the modern system of examinations.

Dr. McGuire believes that the laboratory, however, has been placed on too high a pedestal and that it is tyrannizing the clinician. It should be remembered that the best results are obtained by combining laboratory data and clinical findings, each being used to correct the possible error of the other.

Hospitals, too, have advanced. A hospital is now accepted as the safest, most comfortable and most economical place for the seriously sick, and it is also recognized as a local center for the dissemination of knowledge among the public, the training and education of nurses, and the uplift of the profession by the demands made for good records, thorough examinations, accurate diagnoses and rational treatment. The hospital of the future, Dr. McGuire says, should not only care for its patients, but also be a center for medical research, a stimulus for the understanding visitor, and a training-school for nurses, students and doctors.

The modern trained nurse has also been of the greatest importance in advancing the medical profession to its present high status. Medical societies give to the physician educational and professional advantages as well as important social and personal benefit. There is need for a movement to standardize medical associations, and until this is done through the proper channel, the profession should try to minimize the evil by withdrawing its membership from superfluous organizations.

The modern clinic affords means for observation of the work of others, and it has now become the custom for the busy surgeon and physician to devote two or three weeks of the time previously assigned for a vacation to the duty of seeing, at first hand, what his fellows are doing.

"Surgeons, as a rule, attend clinics more frequently than do physicians. This is a pity, for even in a strictly surgical clinic the points of greatest interest are not the methods of operating, but the explanation of symptoms by the pathological conditions found. It is a curious fact that many physicians who would travel miles to see a post-mortem examination will not go around the corner to witness an operation which demonstrates the same changes produced by disease in the living before they are obscured by terminal results. To correct the loss entailed by the failure of the average physician to avail himself fully of the advantages offered by the modern clinic, the internist must learn that to keep abreast of the times it is necessary not only to study but to travel as well."

Finally, Dr. McGuire considers the efficiency of publicity and warns against the teaching of false science, just as in the past, false history and false geography have been taught. He believes, too, that a greater familiarity with scientific facts may result in a loss in feminine character of women. For the present, publicity in medical matters has undoubtedly done good; but unless great care is taken, it is to be feared that a change from the credit to the debit side of the ledger in this regard is to be expected.

Consumption of Milk in the Philippines

According to *Daily Consular and Trade Reports*, the consumption of milk is rapidly increasing in the Philippines, although this is not apparent from the importation values of 1913 as compared with those of 1912. The increase of 1912 over 1911, however, is large, and the increased production and use of fresh milk in 1913 accounts for the difference in the amount imported. Two new dairies near Manila, with comparatively large output, have begun operations within the past two years. The small supply of milk has been heretofore chiefly from the small native cattle and the carabao, neither of which furnish large supplies. The native cows are not well adapted for milk production, and the decrease in their number for some years on account of rinderpest and other cattle diseases has decreased rather than increased the supply, which has been largely provided for by the importation of condensed and evaporated products from abroad. It is said there is now an increased tendency among Filipinos to use milk, and the growing wealth per capita makes this possible. The efforts during the past decade to teach mothers the proper care of their children has also resulted in greater use of milk as a standard food. Two societies have been organized in Manila for the training of mothers in the care of children, and each has a large membership. Five or six training schools for nurses have been established, and these send out large classes yearly. They give instruction in the training of children, urging the freer use of milk. There are practically no fresh milk dairies outside of Manila, and the supply when there is one is from the native cattle, goats or the carabao. The increased consumption is therefore chiefly dependent on imported milk. Prices for dairy products in and near Manila are about as follows: cow's milk, from 15 to 25 cents per liter (quart); cream, 25 cents per half pint; carabao milk, undiluted, from 12 to 17 cents, diluted, from 10 to 12 cents per liter.

Medicolegal

Power Conferred on State Board of Health—Validity of Ordinance to Secure Pure Milk

(Hawkins vs. Hoye et al. (Miss.), 66 So. R. 741)

The Supreme Court of Mississippi says that the legislature, by virtue of the police power of the state, may enact all needful laws for the purpose of preserving the health, preventing the spread of disease and protecting the lives of the citizens. Under this power the legislature may create boards of health and bestow on them necessary powers to promote the general health of the people by providing for them healthful conditions. The legislature conferred on the State Board of Health the power to make reasonable rules and regulations for the prevention of diseases and the protection of the health of the people. It is plain that the statutes bestowed on the State Board of Health the authority to adopt an ordinance requiring all cows used by dairymen selling milk to be semi-annually examined for tuberculosis and other contagious and infectious diseases, by a competent veterinarian, and that no one engaged in the business of buying and selling milk or its products shall sell or offer for sale any milk or any of the products thereof from any cow not examined and certified, or from any cow the use of which has been condemned and prohibited, or from any cow known to be infected, or the milk of which is impure and injurious to the public health. This does not violate the provision of the state constitution vesting in the legislature only the power to legislate. Statutes establishing boards of health for the purpose of advancing the public health by investing such boards with the power to adopt ordinances, rules and regulations necessary to secure objects are not unconstitutional as being a delegation of legislative power. The requirement that the cows used in the dairy business, where milk therefrom is sold generally to the people, shall be inspected as to their health twice during the period of a year is not an unreasonable regulation. The regulation is within the police power of the state. It is in aid of good health and consequently tends to the welfare and safety of the people. Tuberculosis is a disease dangerous and destructive to human life. It is recognized that tuberculosis may be communicated to human beings by the use of milk from cows affected with the disease. Therefore it was proper for the board of health, the body empowered and enjoined by the statute, to supervise the health interest of the people and to prevent the spread of epidemic diseases, to make this regulation. There is no purpose in it to deprive a person of property or restrict or interfere with his liberty of action. The court deems it in harmony with the organic law of the state and nation, the constitutions. Nor does the court see any force in the contention that this regulation should be made by and be under the control of the live stock sanitary board of the state. That board is not given any jurisdiction over matters such as is presented in this ordinance. The regulation in this case is to prevent the spread of a disease among human beings. It is not directed to sanitary measures in behalf of live stock.

Proof Required of Account for Services

(Tedrow vs. Johnson et al. (Ia.), 149 N. W. R. 645)

The Supreme Court of Iowa reverses a judgment obtained by the plaintiff for services rendered by him as a physician and surgeon and supplies furnished. The court says that it is constrained to hold that there was error in instructing the jury that the evidence as to value was undisputed, and that the jury should find for the plaintiff for the full amount of his claim, unless they found the account barred by the statute of limitations. It appeared that a small part of the plaintiff's account was for medicines furnished in 1904 and 1905. In 1906 a 3-year-old child of the defendants' was injured by a mowing machine. Both limbs were nearly severed. The larger part of the account was for services in treating this child for such injuries. The first charge was $40 for surgical work, and other charges were for calls and dressing the limbs almost daily for about seven weeks, and other charges were for professional services in the office. A charge of from $3 to $5 was made for each time a call was made and the limbs dressed. A few charges were for services for other members of the family. The evidence of the plaintiff as to the value of his services was short. But the question of value was an issue in the case which the plaintiff was required to prove. Another physician, who said that he had practiced medicine and surgery in Webster City for twenty-five years, and had practiced throughout the county, testified that a charge of from $3 to $5 for a trip from the town of Williams, 6 miles away, for the purpose of viewing and dressing the wound, was reasonable. When asked if he knew what charges prevailed for medical and surgical services on the part of physicians located in Williams for work in a radius of miles, he answered that he was not certain just about the fee, but he knew nearly what it was. The court considers that the foundation was sufficient to permit the witness to testify to charges in the neighborhood of Williams. The weight of his testimony was for the jury. From the interrogatory propounded to this witness, and the claim of the defendants that the charges were to be limited to $100, the court infers that there may have been some contention as to the amount or value of the services. If the question had been left to the jury, and they had found for the plaintiff in the amount claimed, the court would not, of course, say that the verdict was not supported by the evidence. In Fowle vs. Parsons, 141 N. W. R. 1049, it was held that, in an action by a physician to recover for services in performing a surgical operation, notwithstanding that the plaintiff's evidence as to the value of the services was not disputed, it was still a question for the jury, and was error to direct a verdict for the plaintiff for the full amount of his claim. It may work a hardship in some instances, but the rule is correct. If it were not so, a witness could testify that his services were worth $25, $50, or $500 for each visit, and the other party would be bound thereby. The burden of proof was on the defendants to show that the plaintiff's claim was barred by the statute of limitations.

Middle Course Taken on Liability of Charitable Institutions for Negligence

(Hoke et al. vs. Glenn et al. (N. C.), 83 S. E. R. 807)

The Supreme Court of North Carolina says that it prefers to adopt the middle course, which exempts charitable institutions from liability for the negligence of employees and requires the exercise of ordinary care in selecting them, as the more consonant with authority and with the purposes for which such institutions are established. The beneficiaries of charitable institutions are the poor, who have very little opportunity for selection, and it is the purpose of the founders to give them skilful and humane treatment. If they are permitted to employ those who are incompetent and unskilled, funds bestowed for beneficence are diverted from their true purpose, and, under the form of charity, they become a menace to those for whose benefit they are established. It is therefore better for those committed to their care and for the institutions, and necessary to effectuate the purpose of their creation, to require the exercise of ordinary care in selecting employees, and in supervising them. In the application of this principle, the distinction between the negligent act of the employee and the negligence of the corporate body in selecting employees must be kept steadily in view, as it is only the latter which creates liability.

Hospitals for Which Counties are Not Required to Appoint Boards of Managers

(Glasscock et al. vs. Wells et al. (Tex.), 171 S. W. 782)

The Court of Civil Appeals of Texas affirms a judgment for the defendants in this mandamus suit brought to compel the commissioners' court of Lamar County to appoint a board of managers for a hospital alleged to have been established by the county within its limits. The court says it thinks it obvious that, in providing for the appointment of a board of managers for a county hospital, the legislature had in mind a hospital established and maintained by the county, not to meet a temporary emergency like that arising from an epidemic of smallpox, but permanently and continuously, for the treatment of illness, disease, and injuries generally. It is manifest from the provisions of the statute that the legislature did not mean to require the appointment of such a board to take charge of a building constructed by the county for use as a hospital, but which it never equipped or used for that purpose, and which, because it was unfit for the purpose, it had abandoned all intention of ever equipping and using. It is equally manifest from those provisions that the legislature did not mean to require the appointment of such a board to take charge of the pesthouses used only occasionally and for no other purpose than to detain, care for, and treat persons suffering with smallpox. The legislature had in mind an institution of a permanent character, to be continuously maintained, equipped for the care and treatment of sick and injured people generally. It is also as plain that a hospital given to a city in the county, and operated by the city and county on their joint account, was not a county hospital within the meaning of the provision in the statute requiring the commissioners' court to appoint a board of managers.

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
American Association of Immunologists, Washington, May 10.
Amer. Assn. of Pathologists and Bacteriologists, St. Louis, Apr. 2-3.
American Dermatological Association, New York, May 13-15.
American Gastro-Enterological Association, Baltimore, May 10-11.
Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
American Neurological Association, New York City, May 6-8.
American Orthopedic Association, Detroit, May 6-8.
American Psychopathological Association, New York, May 5.
American Urological Association, Baltimore, April 13-14.
Arkansas Medical Society, Little Rock, May 3-6.
Association of American Physicians, Washington, May 11-12.
Conf. of State and Prov. Boards of North America, Washington, May 14.
Connecticut State Medical Society, Hartford, May 19-20.
Florida Medical Association, De Land, May 12-14.
Georgia Medical Association, Macon, April 21-23.
Illinois State Medical Society, Springfield, May 19-20.
Iowa State Medical Society, Waterloo, May 12-14.
Kansas Medical Society, Kansas City, May 5-6.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Mississippi State Med. Association, Hattiesburg, May 11.
Missouri State Medical Association, St. Joseph, May 10-12.
Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
Nebraska State Medical Association, Hastings, May 18-20.
New Hampshire Medical Society, Concord, May 19.
New York State Medical Society, Buffalo, April 27-29.
North Dakota State Medical Association, Bismarck, May 12-13.
Ohio State Medical Association, Cincinnati, May 4-6.
Oklahoma State Medical Association, Bartlesville, May 11-13.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.
Texas State Medical Association, Ft. Worth, May 4-6.
West Virginia State Medical Association, Huntington, May 12-14.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Feb. 24, 1915

The President, Dr. E. E. Montgomery, in the Chair

Foreign Bodies in Rectum

Dr. Lewis H. Adler, Jr.: A man, aged 60, had been wearing a so-called pile supporter in the anus for a long time. It slipped within the bowel and could not be removed. It felt like a door knob. Under ether I extracted the foreign body, which proved to be the handle and valve of a steam radiator pipe. The man was addicted to masturbation and had employed the instrument to further the habit.

A woman, aged 42, about six years previously, thought she was pregnant. After six months' suppression the menses returned. Two years later she contracted diarrhea, which has continued with intermissions of two or three months. Six months ago she experienced considerable pain and tenesmus low down in the pelvis and about the rectum. As many as a dozen paroxysms a day would occur. About two months ago she passed from the rectum what she termed "a bunch of bones" and a month later a piece of skull. Digital exploration of the rectum revealed a mass situated about 4 inches up the bowel anteriorly which felt very much like the united halves of a clam shell when half open, the edges being sharp and exposed. The tissues in which the mass was imbedded were greatly hypertrophied. A few small pieces of bone were removed at this time by breaking them off, but it was soon evident that the larger mass could not be extracted except under general anesthesia. The patient was etherized, the sphincter dilated and the mass of bones removed. Two possible conditions present themselves as causal: A dermoid cyst, or the product of an extra-uterine fetation. Since the essential symptoms of the dermoid cyst were not present, and in view of the previous history, I am inclined to the opinion that her condition was due to the latter cause.

DISCUSSION

Dr. T. Hewson Bradford: A man presented himself for treatment with symptoms of tenesmus. The day before he had eaten what is termed "pigs in a blanket"—an oyster between bacon, held together by a toothpick. He swallowed oyster, bacon and toothpick. A mass was easily felt in the rectum. It was evident that the toothpick had broken and passed through the alimentary tract. By introducing a speculum into the anal aperture I was able to see it and deliver it.

Case of Chronic Interstitial Nephritis; Double Hydrothorax, with Apparent Arrest

Dr. James M. Anders: A man, aged 44, became ill in August, 1912, with dyspnea on exertion. In October there was distress in breathing, which gradually grew worse and prevented sleep. May 28, 1913, there were signs of fluid in the left pleural sac, but no external edema. The urine contained a trace of albumin, and tube casts, which have gradually increased in amount and number, with failing compensation. The signs of moderate dilatation of the heart later became pronounced, accompanied with a canter rhythm of the heart. The blood pressure was moderately increased but never high. The treatment consisted of rest, both physical and mental, restriction of fluid intake and of food to milk, cereals, bread and butter, fruit juices, lettuce and the like. Cardiac stimulants such as digitalis, strychnin, caffein citrate, spartein sulphate and nitroglycerin aggravated the distress of breathing and the general discomfort of the patient, and failed to prevent recurrence of the hydrothorax. Dec. 2, 1913, the left chest was aspirated and 3 pints of serous fluid removed. Six days later an equal amount was withdrawn from the right chest and thereafter the two sides alternated at intervals of about a week until April 4, 1914, when I began to tap both sides at one sitting, aspirating fourteen times in all. In July, 1914, the left side began to retract, and the quantity of serum from the left pleural sac to diminish. Intervals between tappings became longer but the amount of fluid removed (3 pints) remained unchanged for the right side until the date of the last aspiration, Oct. 29, 1914, when it was about half. Since this time there has been no recurrence of the transudate on either side of the chest. The general tendency to recurrence of the serous fluid was maintained until the preparations of digitalis generally employed were replaced by digipuratum. The commencing dose was one-third grain every third hour, which has been reduced to one-fourth grain every fourth hour. The urine now contains a strong trace of albumin and a few narrow hyaline casts; the blood pressure is 167 systolic; 135 diastolic. While degenerative changes are obviously continuing in the kidneys, the man's general condition is markedly improved.

Carcinoma of Uterus in a Woman Twenty-Four Years of Age

Dr. P. Brooke Bland: The patient, aged 24, was admitted Jan. 21, 1915, and discharged cured, February 13. Her last normal menstrual flow occurred in September. She was married at 18 and had had two pregnancies terminating prematurely. Her menstruation in October was two weeks overdue; in November, normal; in December she had severe cramps for two days, passed large clots of blood and had been bleeding daily for six weeks before she presented herself at the hospital. Bleeding was aggravated by a vaginal examination. There was backache; there were no bladder or rectal symptoms. Loss of weight and strength had been progressive. Blood count, January 23, was hemoglobin, 80 per cent.; white cells, 13,600; red cells, 4,890,000; color index, 8. The upper part of the vagina was the site of a large round mass with an irregular surface, more or less granular. The surface was soft in consistence but the base of the mass was firm, hard and cartilaginous. The surface was friable, broke down readily under pressure and bled freely after manipulation. The surface of the tumor extended to the vaginal fornices, but the uterus was freely movable and there was no evidence of broad ligament infiltration. Operation was done, January 26. A moderately large mass was discovered at the bifurcation of the left iliac vessels. A radical Wertheim operation was performed, and the patient made an uninterrupted recovery.

The diagnosis of squamous-cell epithelioma of cervix with metastasis to pelvic tissue was given in the laboratory report.

Papillary Cystoma of Ovaries with Ascites

Dr. F. Hurst Maier: The patient, aged 30, unmarried, with negative family history and regular menstruation, was in good health until September, 1912, when she noticed an enlargement of the abdomen. From that time until December she lost 10 pounds and suffered from lack of appetite and general weakness. There were the ordinary signs of ascites, but no edema of the legs or eyelids, and no cardiac disease; the urine was normal in quantity and quality. There was apparently no hepatic trouble. Ehrlich's diazo test was negative; von Pirquet, positive. Vaginal examination showed the presence of an ill-defined, resisting, immobile mass on each side of the uterus. Operation confirmed the diagnosis of papillary cystoma of the ovary. Besides the free fluid present, the left ovary was the seat of a papillary growth the size of a child's head, and the right of a medium-sized grapefruit. The uterus was free; there was little involvement of the intestines, but the surface of the omentum was thickly studded with secondary papillomatas.

Two Cases of Multiple Serositis

Dr. Elizabeth L. Peck: A woman, aged 37, had pains in her chest in August, 1910, and was not well in the autumn. In December she had an effusion in her knee joint but could recall no injury. This subsided, and there has been no recurrence. In December she had pleurisy with effusion, marked on the left side, but involving also the right base. From this she made a fair convalescence. Her last menstruation was in February, 1911. For the next three months, when the period was due violent attacks of pain and vomiting occurred. In July there was recurrence of the pain and vomiting, and the liver began to enlarge and there was some ascites. In December the effusion was marked with cyanosis, shortness of breath and failure in strength; there was infiltration of the right lung. Exploratory incision was followed by shock. Six pints of fluid with a specific gravity of 1.021 and a considerable albumin content were removed. The liver reached nearly to the umbilicus, and to touch gave a sensation of soft roughness. There was no evidence of tuberculous invasion. The pelvic organs were markedly atrophic. A slow and partial recovery ensued. In March, 1914, an acute pulmonary congestion occurred from which the patient rallied slowly. In July, 7 pints of serum were removed. Another tapping was required in October, and about every four weeks since that time, the amount varying from 10 to 15 pints, with a considerable amount being left. The patient is fairly comfortable. Both pleura contain fluid to about the angle of the scapula, and pleuritic frictions are heard above the spine of the scapula on the left. The heart is atrophied, the heart tones good, the appetite and digestion excellent, except when the pressure becomes extreme. The required time for paracentesis is no greater than when a large portion of fluid is removed.

The second patient was also a woman, aged 58. She had always been healthy. In February, 1913, she had a febrile attack with much backache. In August the pains became severe and she lost weight. In June, 1914, diarrhea began and her weight fell from 118 to 76. Under treatment directed to lessening peristalsis and relief of pain, improvement occurred. In December an eruption resembling erythema nodosum appeared on the legs and both feet, and the legs were much swollen. Ascites appeared and increased rapidly, and an effusion occurred in both pleurae, reaching to the level of the spine of the scapula. In January, 1915, 7 pints of fluid were removed by paracentesis. Following this the pleural effusion decreased rapidly. The swelling of the legs has entirely disappeared, but pain in the back persists at about the level of the waist. The area of dulness is more marked on the right side, although the fluid level changed with position, denoting probably some deforming peritonitis of the mesenteric attachment which allows the abdominal contents to float more readily in one quadrant than in another. The gastro-intestinal condition is poor and the patient has lost strength rapidly. The blood is nearly normal, except that coagulation time is eight and one-half minutes. The urine analysis is negative except for its high indican content.

DISCUSSION

Dr. James M. Anders: I have long felt that most of the cases of multiple serositis could be referred to tuberculosis. I have also seen a certain number of instances following a characteristic form of Pick's disease. Whether there is a multiple serositis which cannot be referred to either one of these conditions I think is somewhat doubtful.

Dr. Joseph Sailer: Multiple serositis is comparatively rare. I think it only fair to conclude from the number of reported cases in which evidence of tuberculosis has been sought and not found that there must be cases of Pick's disease in which tuberculosis is not the etiologic factor. A remarkable feature is the rapidity with which the serous cavities refill. So far as I know, there is no treatment. We can prolong the life of the patient by relieving pressure from time to time.

Unusual and Interesting Cases of Syphilis

Dr. Jay F. Schamberg: A man, aged 62, applied for treatment of a growth on the penis which had existed for several months. There was history of persistent fever for several weeks with a temperature at night of 101 F. The man had lost 25 pounds in weight. On the trunk there was an eruption quite different from that of roseola syphilitica. Despite negative Wassermann tests he was placed on antisyphilitic treatment. Within forty-eight hours the fever had ceased and within three weeks he had regained his loss in weight. A man, aged 42, had on the mucous border of the lower lip a nodular pinkish elevation. There was no induration. An enlarged submaxillary gland aroused suspicion. The Wassermann reaction was strongly positive. After three weeks of vigorous antisyphilitic treatment the Wassermann reaction was again strongly positive. Despite the continued positive reaction I believe the early recognition and treatment of this case have lessened the chance of involvement of the central nervous system. A man, aged 56, had a syphilitic infection dating back twenty-five years. He had osteitis of the tibia with rheumatoid pains. He had also the Argyll Robertson pupil. This man has had twenty-three intravenous infusions of salvarsan and a course of mercurial injections. The Argyll Robertson pupil has practically disappeared and the man's general health is excellent. There is a low grade interstitial nephritis, but the number of casts in the urine is less than before treatment. I believe the strongly positive Wassermann reaction, which we cannot influence, indicates the presence of the treponemes in the cerebral cortex which we cannot reach. The man regards himself as well, but understands that he must be under medical treatment. The intravenous infusions which he received were not only without damage to the kidneys, but also with benefit and with the arrest and disappearance of symptoms of paresis and other manifestations of syphilis.

CHICAGO SOCIETY OF INTERNAL MEDICINE

Meeting held Feb. 22, 1915

The President, Dr. James B. Herrick, in the Chair

Influence of Operative Procedures for Gastric and Duodenal Ulcers on Gastric Motility and Secretion

Dr. Walter W. Hamburger: It is generally conceded, both clinically and experimentally, that motor insufficiency and hypersecretion play the leading rôle among the various factors responsible for chronic ulcer of the stomach. It follows, therefore, that in the treatment of ulcer, therapeutic procedures should be devised to control these two important factors. The surgical procedures instituted for the cure of gastric and duodenal ulcer are legion. Scant inquiry is devoted to the ultimate results of these operations; little thought to the permanent relief of symptoms, to the healing of the ulcer and the prevention of recurrence; no consideration to gastric function, particularly gastric motility and secretion. The cases forming the basis for this study comprise seventeen—nine gastric and eight duodenal ulcers. Of the seventeen cases, eight patients received no or only partial relief from their complaints; nine resulted in marked benefit or complete cure. The cases were examined for the most part on an average from three months to two years following operation. So far as possible, all cases were submitted to complete physical examination, test breakfast and motor meal, and Roentgen examination before and after operation. The gastric ulcers divide themselves into two groups—lesser curvature ulcers (four cases) and pyloric ulcers (five cases). From this series the following conclusions may be drawn: Gastro-enterostomy performed without definite surgical indications (stasis—hypersecretion) is liable to convert normal gastric function to abnormal. Gastro-enterostomy with definite surgical indications is liable to fail and increase stasis and hypersecretion, if the pylorus be not excluded. Best results, with relief of stasis and hyperacidity, are obtained by pylorectomy (or pyloric exclusion) plus gastro-enterostomy. In the cases of pyloric ulcer, excision and closure are of greater importance than in ulcer of the lesser curvature. Postoperative hypersecretion (without stasis) has several interesting problems. From a clinical standpoint, it is likely that in cases showing acid contents after motor meals the explanation lies not, as has been thought, in postoperative stasis, but in postoperative hypersecretion. In duodenal ulcers, as in gastric ulcers, pyloric exclusion plus gastro-enterostomy was attended by best results. Cases with normal preoperative findings developed postoperative stasis and hypersecretion, similar to gastric ulcer. Non-relief from surgical interference in gastric and duodenal ulcer is due to (1) lack of properly placed surgical indications; (2) lack of thorough and prolonged preoperative medical treatment; (3) failure to devise proper surgical procedure to meet the individual case, and (4) lack of prolonged postoperative medical treatment.

DISCUSSION

Dr. Bertram W. Sippy: It has long since been recognized that there is no operative procedure capable of making the stomach empty itself any quicker than normal time. The old idea of immediate drainage is still prevalent in the minds of a great many, and by immediate drainage we mean drainage that occurs relatively early—it is hardly fair to speak of it as immediate drainage. Six years ago I reported something like eighty gastro-enterostomies in which I tested the motor power and found that the stomach did not empty itself appreciably earlier than normal. About 5 per cent. of the cases had delayed motility. Because the stomach does empty itself in normal time after gastro-enterostomy, an ulcer of the duodenum, with its retention of food and secretion, is very much benefited, because the duration of the corrosion is reduced to the normal time that gastric juice and food are present in the stomach. If our notion as to what keeps an ulcer from healing is correct, what are we accomplishing with medical treatment? The Leube management, by lessening the acidity, lessens the amount of irritation to the ulcer and duodenum, and in that way causes the stomach to empty itself in the normal way, to my notion. If it is the corroding acid juice keeping the ulcer from healing, why not do away with it entirely? That is what we have been doing for some time. In our management of these cases we see to it that there is no free acid in the stomach from early morning to late at night, and there is no secretion at night, and in that way the one thing that keeps the ulcer from healing is removed. That seems to me the important thing.

Dr. Ralph C. Brown: I would like to ask Dr. Hamburger whether the cases in which he found a postoperative hyperacidity had been found normal, so far as the acidity was concerned, before operation? To my mind, we have never seen a case in which no hypersecretion or continued secretion was present before operation in which tests after operation have shown it to be present.

Dr. Walter W. Hamburger: The postoperative hypersecretion which we have observed occurred particularly in those cases in which before operation there were normal findings; in other words, cases which probably should not have had surgical interference. We have had three or four cases in which there was apparently a discrepancy between the bismuth meal and the seven-hour test, which I believe has been due to hypersecretion and not true stasis. The same cases before operation had shown normal acidity, but after operation showed hyperacidity and hypersecretion in a large amount. These three or four cases in a small series were rather striking, occurring almost exclusively in cases which had no distinct indication for operation, and showed no special reason for a gastro-enterostomy. It is possible that postoperative hypersecretion occurs in surgery of other organs—for example gall-bladder or appendix or from narcosis alone. We hope to test this out in the near future.

The Blood Pressure in Pneumonia

Dr. Frederick Tice: From a clinical standpoint, the mode of death in pneumonia is of the greatest importance. On this determination the prognosis and treatment must necessarily in greater part depend. It is safe to say that the larger number of clinicians will accept the statement of von Jurgenson that "patients who die of pneumonia are killed by cardiac insufficiency." One of the important problems in the study of pneumonia is that associated with the causative factors of the cardiac failure. Regardless of a few exceptions, it was formerly quite generally accepted that the myocardium was at fault, until Romberg and his associates investigated the problem experimentally, and arrived at the conclusion that the circulatory failure invariably followed an exhaustion or paralysis of the vasomotor center in the medulla. Newburgh and Minot, in their clinical study of pneumonia, among other findings, arrived at the conclusion that the blood-pressure curve did not suggest a failure of the vasomotor center. This conclusion has been amply confirmed experimentally by W. T. Porter, L. H. Newburgh and I. Newburgh. They were able to demonstrate that the vasomotor center was not impaired in fatal pneumonia. Even more convincing are the microscopic findings of Willson as determined in the fatal pneumonias. In every instance he was able to detect myocardial changes due either to a toxemia or to a local infection. On the experimental findings of Romberg and his associates, G. A. Gibson formulated a statement in reference to the relation of the blood pressure to the pulse rate, known as the Gibson rule, which is as follows: "When the arterial pressure, expressed in mm. Hg, does not fall below the pulse rate, expressed in beats per minute, the fact may be taken as of excellent augury, while the converse is equally true. From the work of the last few years in my own wards no fact is more certain than this."

During the past few months a careful clinical study of the application of this rule has been made of the pneumonias admitted to Ward 8, medical service at the County Hospital. In each instance a careful record was made of the pulse, temperature and respiration rate every four hours. The systolic blood pressure, by the auscultatory method, was determined at least every twelve hours. From these records a chart was made showing the pulse-rate and blood-pressure curves. For convenience, the temperature curve as well as the time and amount of digitalis administered was also included. The number of pneumonias so charted includes twenty-two cases, which may be divided, for further study, into two groups according to the relative position of the blood pressure above or below the pulse rate. In the first group of thirteen cases, ten, or 76.9 per cent., complied with the rule, while in the second group of nine cases, five, or 55.5 per cent., were positive. Of the total of the two groups, twenty-two cases, fifteen, or 68.1 per cent., verified the observations of Gibson. A reasonable explanation of the three discrepancies in the first group is to be found in the presence of a nephritis in two and a myocarditis and obesity in the third.

In the second group, of the four deviations from the rule, two patients recovered, both of whom were comparatively young, with soft, elastic vessels, in which presumably a relatively lower pressure existed before the onset of the pneumonia or, at least, were able to withstand a greater depression of the circulation. Excluding the five cases in which a reasonable exception existed, of the remaining seventeen only two failed to comply with the rule. Aside from the prognostic significance of the blood pressure and pulse ratio, it has been of the greatest assistance and satisfaction as a guide to the administration of cardiac stimulants. In some, no stimulation was used, while in others, one or two intravenous injections were sufficient to reduce the pulse rate, increase the blood pressure and produce a crossing of the curves.

From the cases observed the following conclusions are drawn: 1. As a means of prognosis, the Gibson rule was verified in 88.2 per cent. of the cases. 2. As a guide in the treatment, it was of the greatest assistance.

DISCUSSION

Dr. Robert H. Babcock: This paper emphasizes the importance of much more accurate sphygmomanometric readings. My observation in pneumonia cases since Gibson's rule was called to my attention has verified Dr. Tice's findings.

Dr. W. S. Harpole: I should like to ask Dr. Tice if it is his impression that the tendency of the blood pressure in all cases of pneumonia is to be lower than in health? I had that impression, but I have had the opportunity of observing only a few persons whose constant blood pressure was known. I saw a woman not long ago who had a pressure that ran from 180 to 200. She had a typical pneumonia, which she passed through safely, but during the pneumonia her blood pressure was from 140 to 150 all the time. It is my impression that the tendency of the toxin of the pneumococcus is to reduce the blood pressure.

Dr. Frederick Tice: In answer to Dr. Harpole's question, Howell in his article has emphasized the necessity of knowing the blood pressure previous to the onset of the pneumonia, and particularly in the application of the Gibson rule. I believe from the records that one would be forced to conclude that the blood pressure in pneumonia is relatively lower than the average.

Etiology of Chronic Bronchitis, with Special Consideration of Those Forms Associated with Bronchial Asthma

Drs. Karl K. Koessler and Adelbert M. Moody: The anaphylactic shock associated with bronchial spasm is the result of the parenteral entrance of fractions of foreign protein into the circulation, and their action on the smooth muscles of the bronchi. If we, therefore, state that the asthmatic attack is an individual case of anaphylactic shock in the human being, we are forced to the conclusion that the underlying error in the metabolism of asthmatics must lie in the parenteral resorption of the foreign protein or toxic substances derived from protein. In two forms of asthma these statements have been experimentally proved by one of us, namely, in pollen asthma and egg asthma. However, the greatest number of asthmatics do not belong in this group.

The carefully taken histories of the greatest number of asthmatics shows over and over again the following facts: The first attack of asthma started after a cold, tonsillitis or grip of several weeks' or months' duration. Second, every subsequent attack or series of attacks is introduced by a new cold or bronchitis coming on, as a rule, in the time of the year when nasobronchial infections are prevalent. Third, a good number of asthmatics are subjects of chronic bronchitis, from which they suffer more or less, even in the intervals between the attacks. This bronchitis is usually regarded as a concomitant affair of subordinate nature which develops secondary to the asthma. Contrary to this view, we hold that in most cases of true bronchial asthma the causative factor of the disease lies directly in the bronchi, that the concomitant focal infection and the bronchitis caused by it constitute the primary condition, and that the asthmatic patient has become sensitized or anaphylactic to the infective agent causing his cold and his bronchitis. A bacteriologic study of the bronchial exudate of twenty-eight patients suffering from bronchial asthma showed in every instance, besides the common aerobic organisms — pneumococcus, streptococcus, influenza bacilli and *Micrococcus catarrhalis* — the presence of anaerobic organisms, and under these especially three forms: (1) a Gram-negative, fusiform-like bacillus, which produces a putrefactive odor in the culture; (2) a Gram-negative, very small bacillus, which produces characteristic black colonies on blood agar, and (3) a very small streptococcus. These three organisms live in a certain form of symbiosis, and are in every case present together in the anaerobic tube. The rôle which these anaerobic organisms play in the production of parenteral resorption of the split protein products is probably a twofold one: (1) They form products of putrefaction (amins) which on resorption lead to a spasm of the smooth muscles of the bronchi, and (2) they produce areas of liquefaction necrosis in the epithelial layer of the bronchial mucosa and submucosa which permits a rapid resorption of the toxic products *in loco*. In three cases the biochemical examination of the sputum gave a characteristic Pauly reaction with diazobenzenesulphonic acid after excluding the presence of tyrosin, thus proving the presence of hystidin or hystamin, the latter formed by decarboxidation under the influence of the putrefactive organisms.

There exists a certain form of chronic asthma-bronchitis which is due to a tuberculous infection. We do not refer here to the more common forms of tuberculosis of the bronchial lymph glands, which by pressure on the trunk of the vagus lead to bronchospasm, but to forms of chronic bronchitis of a benign character with more or less emphysema, which were first described in France by Bardan or by Piery as tuberculosis fibrosa lenta cum emphysemate. The characteristic Roentgen findings usually show an increased hilus shadow from which numerous fine lines radiate in all directions of the lung tissue toward the periphery. There are often dense disseminations over the diaphragmatic pleura on one side, which show considerable thickening. In this form of asthma-bronchitis, repeated examinations fail to show any acid-fast tubercle bacilli, but in the greater number of cases Much's granular form of the tubercle bacillus could be demonstrated, which on injection into the guinea pig produces typical tuberculosis. But even in this form of asthma, when the aerobic germ is the tubercle bacillus, the anaerobic microorganisms could always be demonstrated at the same time in the bronchial exudate.

DISCUSSION

DR. ROBERT H. BABCOCK: The only possible difference in my view of bronchial asthma from Dr. Koessler's, if I have understood him correctly, is that I hold that in many cases of bronchial asthma with chronic bronchitis the bronchitis was not the primary source of the infection. There is often a primary focus somewhere else. A case I have in mind was one of a man who had been ill for something over two years with bronchial asthma, for two months bedfast, unable to lie down, presenting a typical picture of bronchial asthma, chronic bronchitis, emphysema and a dilated heart. The only primary focus I was able to discover was a small alveolar abscess at the root of one of his teeth. After extraction of the tooth and cleaning of the abscess cavity the man began slowly to improve, but was not completely relieved. Finally I decided to have a culture made, which showed an anaerobic fusiform bacillus which gave forth a foul odor. Vaccines were prepared and the man put under treatment, with most excellent results. I believe that this work is opening up to us a most encouraging line of treatment for this very distressing malady.

DR. KARL K. KOESSLER: I agree with Dr. Babcock. I omitted to speak about the problem of local infection in parts of the body other than the bronchial mucosa, but I agree that the primary focus might be in an empyema or alveolar process. In our experience with the vaccine treatment, I want to emphasize that our results have been, on the whole, very encouraging. However, if the anaerobes are not in the vaccine I believe that the result will be mediocre. It seems to be necessary to have these anaerobic organisms in the vaccine in order to get the desired result.

DR. JAMES B. HERRICK read a paper entitled "Pulsus Alternans Detected by the Sphygmomanometer," which appeared in THE JOURNAL, Feb. 27, 1915, p. 739.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

March, IX, No. 3, pp. 189-260

1 *Schick Toxin Reaction for Immunity in Diphtheria. J. A. Kolmer and E. L. Moshage, Philadelphia.
2 Blue Sclerotics Associated with Brittle Bones (Patient Two Years Old). C. Herrman, New York.
3 Chemical Composition of Diarrheal as Compared with Normal Stools in Infants. L. E. Holt, A. M. Courtney and H. L. Fales, New York.
4 *Studies in Fat Indigestion. C. H. Dunn, Boston.
5 Study of Certain Cases of Infantile Diarrhea During Summer of 1914. A. A. Day and J. R. Gerstley, Chicago.

1. Schick Toxin Reaction for Immunity in Diphtheria.—Kolmer and Moshage summarize their work as follows: 1. The toxin skin reaction is a valuable and reliable method for detecting susceptibility to diphtheria. 2. Persons reacting negatively to this test usually contain at least $1/20$ unit of diphtheria antitoxin per cubic centimeter of serum, and this amount of antitoxin is probably sufficient to protect against infection. 3. Persons reacting weakly or strongly positive usually contain less than $1/40$ of a unit of antitoxin per cubic centimeter of serum or none at all. These persons may be regarded as susceptible to diphtheria and in the event of exposure to infection should be passively immunized with an injection of antitoxin. 4. About 40 to 50 per cent. of children ranging from 1 to 15 years of age react positively to the toxin test; this means that the preliminary use of the toxin test will eliminate the necessity of administering prophylactic doses of antitoxin to about 50 per cent. of children. 5. The toxin reaction indicates that the immunity conferred by an injection of antitoxin begins to disappear after ten days and has generally passed away entirely after four weeks. 6. The increased susceptibility of persons with scarlet fever to diphtheria is shown by the toxin reaction; even after the injection of antitoxin about 10 per cent. are susceptible within ten days. 7. According to the toxin reaction the immunity conferred by an attack of diphtheria is usually of short duration or entirely absent. 8. The most practical application of the toxin reaction consists in applying the test as a preliminary measure to all persons who have been exposed to diphtheria and immunizing only those who react positively.

4. Fat Indigestion.—As to the treatment of severe cases of fat indigestion Dunn states that the milk modifications used must be low in fat, average in carbohydrate, comparatively high in protein. The extra sugar should be maltose. A certain number of the milder cases will do well on this treatment. Severe resistant cases are those in which the patients cannot gain on a low quantity of fat and cannot tolerate an increase. A large number of cases are so severe and resistant that they can be saved only by human milk. Breast-milk will save most of these cases, even the severe ones, if used in time. It should always be used in resistant cases, whenever it can be obtained. Even a little breast milk is of value, and may save a patient that would otherwise be lost. After a period of breast-milk feeding, many cases are found no longer severe and resistant to artificial feeding. If breast milk cannot be obtained, the feeding is very difficult and the outcome uncertain. Excessive increase of carbohydrate or protein will not help these severe cases, and may do harm; Dunn believes that not more than 7 per cent. carbohydrate or 3 per cent. protein should be given. Whey mixtures are of no help except sometimes in very young babies who vomit curds; they may do harm. Giving the protein in the form of precipitated casein may be tried, and may help in some cases. There is not sufficient evidence of its value to indicate its use as a routine.

The only way to manage these resistant cases without breast milk is to keep the fat low, and be prepared for a period of loss of body weight which may be prolonged. If they begin to gain when the fat is increased, it is no sign of permanent improvement; they may go to pieces at any time. Frequent examinations of the stools for free fat and excessive soap must be made. In the presence of free fat, or in the continuous or increasing presence of excessive soap, the fat should be reduced, even if the baby is gaining. If a "blow-up" occurs when the fat is increased, the fat in the food should be reduced to zero, and then worked up again, slowly. Frequent "blow-ups" diminish the tolerance for fat. The best hope of eventually obtaining an increase in tolerance of fat sufficient to permit a gain in weight is to avoid overfeeding with fat for a long time, even if much weight is lost.

American Journal of Medical Sciences, Philadelphia

March, CXLIX, No. 3, pp. 313-468

6 Fundamental Principles Involved in Use of Bone Graft in Surgery. F. H. Albee, New York.
7 *Gastric Ulcer. J. B. Deaver, Philadelphia.
8 Pain and Other Sensory Disturbances in Diseases of Spinal Cord and Their Surgical Treatment. C. A. Elsberg, New York.
9 Severe Jaundice in Newborn Child Cause of Spastic Cerebral Diplegia. Report of Cases. W. G. Spiller, Philadelphia.
10 *Prevalent Fallacies Concerning Subacromial Bursitis. Its Pathogenesis and Rational Operative Treatment. W. M. Brickner, New York.
11 *Clinical Interpretation of Wassermann Reaction, with Special Reference to Cholesterinized Antigens. J. A. Kolmer and J. F. Schamberg, Philadelphia.
12 Colonic and Pericolonic Abnormalities. G. I. Jones, U. S. Army.
13 Syphilis of Stomach. Report of Cases. W. G. Morgan, Washington, D. C.
14 *Value of Typhoid Vaccine in Treatment of Typhoid. E. B. Krumbhaar and R. Richardson, Philadelphia.
15 Physical Basis of Chronic Infections and of Recovery Without Immunity. A. P. Hitchens, Glenolden.
16 Keratosis Pilaris of Scalp. R. L. Sutton, Kansas City, Mo.
17 *Serodiagnosis of Rabies. M. G. Wohl, Philadelphia.

7. Gastric Ulcer.—Deaver advises that after opening the abdomen and locating the ulcer the stomach should be opened and the base of the ulcer inspected. If the vessel is seen it should be ligated directly by *transfixion*. If, as is more commonly the case, no erosion or vessel is seen a stitch of catgut should be whipped around the base as well as the edges of the ulcer, with the object of occluding the vessel supplying it. The stomach may then be closed and gastro-enterostomy quickly performed. In cases in which the ulcer cannot be located by inspection and careful examination of the exterior of the stomach, open widely the stomach through the anterior wall and inspect its anterior throughout. The latter treatment applies to chronic ulcer more than to acute ulcer. That the danger in opening the stomach ulcer cannot be great, Deaver states, is proved by the fact that he has operated in thirty-three cases of acute perforation of the stomach and duodenum with but one death. Deaver urges the propriety of acting on a well-reasoned suspicion that the appendix is responsible for much of the serious diseases of the upper abdomen.

10. **Subacromial Bursitis.**—The fallacies discussed by Brickner are: 1. That thickening of the bursal walls casts a shadow in the roentgenogram. (It does not). 2. That the calcareous deposit found in many of the cases is in the bursa. (It is beneath the bursa). 3. That subacromial bursitis often arises from vaguely conceived bacterial "toxic" irritation. (Not substantiated). 4. That subacromial bursitis is marked by decided swelling in the deltoid region. (When present at all, in early stage only). 5. That there is a characteristic point of tenderness over the outer aspect of the shoulder just below the acromion margin, and that the absence of this sign indicates, clinically, absence of bursitis. (Absent as often as present). 6. That the routine operative treatment to be recommended is "excision of the entire bursa." (Unnecessary; remove calcareous deposit but give non-operative treatment a trial first.)

11. **Wassermann Reaction with Reference to Cholesterinized Antigens.**—Cholesterinized alcoholic extracts of normal heart, in the opinion of Kolmer and Schamberg, constitute more sensitive antigen in the Wassermann reaction than alcoholic extracts of syphilitic liver and extracts of acetone-insoluble lipoids. The latter extracts are superior to alcoholic extracts of syphilitic liver and rank second to the cholesterinized extracts in antigenic sensitiveness. Of forty-one cases reacting only with cholesterinized antigens no less than twenty were known definitely to be syphilitic and in at least fourteen the diagnosis of lues was most probable. The authors are of the opinion that cholesterinized extracts are best employed in conjunction with non-cholesterinized extracts in performing the Wassermann reaction and very slight positive reactions with the cholesterinized extracts should be interpreted in conjunction with a clinical study of the patient. With a person known to be syphilitic these slight reactions are to be interpreted as positive and as an indication for further treatment. In using cholesterinized antigens the authors claim it is not advisable to work with single units of complement and amboceptor because of the well-known antihemolytic properties of cholesterin, and the corresponding increased likelihood of obtaining false reaction. Cholesterinized alcoholic extracts of heart are easily prepared and are quite stable. It is advisable, however, to retitrate them at frequent intervals as is usual with other antigens. Cholesterinized alcoholic extracts of human heart are probably better than those of beef and guinea pig heart. The latter extracts are particularly prone to become anticomplementary.

14. **Value of Typhoid Vaccine in Treatment of Typhoid.**—That the curative use of typhoid vaccines in the course of typhoid in order to stimulate further antibody formation has a logical theoretical basis, although its mode of action has not as yet been demonstrated experimentally, is maintained by Krumbhaar and Richardson. Practical proof of its value is afforded by the rise in agglutinin curves after such vaccination. The proper use of vaccines in the treatment of typhoid has been found clinically to be without harm, and usually to produce beneficial results. It rarely causes any noticeable aggravation of symptoms, beyond a fleeting rise of temperature. Relapses and complications are diminished in frequency, but not prevented. The increase in size of the spleen, noted by others has not been observed by us. The best results are obtained if the injections are begun early in the disease, especially before the tenth day. A blood culture is more valuable than the Widal test in the early stages. Late in the course of the disease, except in selected cases, the value of vaccines (both theoretically and practically) is more dubious. In the chronic complications of typhoid, such as periostitis and cholecystitis, good results have been obtained from vaccines by other investigators. The contra-indications for vaccine treatment of typhoid are not yet clear.

The authors hesitate to advocate their use in moribund or very toxic cases, during hemorrhages or suspected perforations, or in such complications as pneumonia or otitis in cases in which other micro-organisms are involved. The best dosage has also not been determined. The dosage must vary within certain limits for each patient, and no cut-and-dried rule should be attempted. The more severe the disease the smaller and more cautious should be the dosage. With their methods of preparation the authors felt that the best initial dose for average adult was 50,000,000; if this proved to be the proper amount, two or more larger doses were given usually at three-day intervals.

17. **Serodiagnosis of Rabies.**—The Abderhalden reaction was utilized by Wohl for diagnostic purposes of rabies. He states that the reaction is positive as early as the third day in rabbits subdurally inoculated with fixed virus. Serum of healthy rabbits cause cleavage of brain and placenta tissue, yet to a very light degree.

Annals of Surgery, Philadelphia

March, LXI, No. 3, pp. 257-384

18 *Tonsillectomy in Children from Standpoint of General Surgeon. D. C. Balfour, Rochester, Minn.
19 Mechanism of Production of Hemorrhagic Erosions of Esophagus and of Some Associated Lesions in Ileus. B. F. Davis, Chicago.
20 Surgical Anatomy of Upper and Lower Poles of Thyroid with Reference to Thyroidectomy. N. Ginsburg, Philadelphia.
21 *Uretero-Enteric Anastomosis. W. H. Barber, New York.
22 Studies in Obscure Forms of Prostatic Obstruction and Vesical Atory. B. Lewis, St. Louis.
23 *Lymphatic Drainage of Peritoneal Sac. W. C. Woolsey, Brooklyn.
24 *Prevention of Postoperative Adhesions in Peritoneal Cavity. J. E. Sweet, R. H. Chaney and H. L. Willson, Philadelphia.
25 *Technic of Cholecystectomy. E. S. Judd, Rochester, Minn.
26 *Experiments on Surgery of Pancreas. J. E. Sweet and I. H. Simons, Philadelphia.
27 Study of Multilocular Cystadenomata of Retroperitoneal Origin. E. Staehlin, Newark, N. J.
28 Surgical Significance of Intestinal Angioneurotic Edema. A. H. Bogart, Brooklyn.
29 Secondary Ulcers of Stomach and Jejunum. Formation of Calculi Around Unabsorbable Material Used in Suturing Intestinal Mucosa. A. L. Soresi, New York.
30 Clinical Aspects of Colon Stasis. J. R. Eastman, Indianapolis.
31 Roentgenologic Findings in Three Cases of Diverticulitis of Large Bowel. R. D. Carman, Rochester, Minn.

18. **Tonsillectomy in Children.**—A modification of the Waugh method is used in the Mayo Clinic. It has proved satisfactory in the 1,654 cases.

21. **Uretero-Enteric Anastomosis.**—A new method of entero-ureteral operation is proposed by Barber. A mesoventrad incision 5 cm. long is made in the lower abdomen. Free the ureter from its bed. Divide between two ligatures just cephalad to the bladder. Attach a straight-cutting needle to the cephalad ligature and penetrate the sigmoid colon in a line perpendicular to its long axis. Drive the needle though at a point 90 degrees distant on intestinal wall, thus drawing ureter through each wall. The sigmoid is then suspended within the wound by the usual glass-rod method. The ligated cephalad end of the ureter is allowed to protrude on the skin in which its ligature is fixed by a single suture. The wound is then closed about the sigmoid and the ureter. Six hours later the exposed ureter is incompletely cut and allowed to empty. It may be returned to the lumen of the intestine at any time thereafter, but it is well to retain it under control until its continued patency is assured. One or both ureters may be transplanted in this way within twenty minutes.

23. **Lymphatic Drainage of Peritoneal Sac.**—Absorption of certain solid foreign material injected into the peritoneal sac Woolsey found occurs with marked rapidity, first by a

process of translocation through the cells of the diaphragmatic mesothelium and later through the agency of leukocytes. Such solid foreign material having passed the peritoneal mesothelium is conveyed through the endomysial tracts throughout the diaphragmatic musculature to the lymphatic radicles on the pleural surface of the diaphragm, from these through the various diaphragmatic gland groups to the costoxiphoid glands of Sappey, and from thence through the retrosternal chain of lymphoid tissue to the subclavian vein or thoracic duct. Certain fluids injected into the peritoneal sac followed the same lymphatic absorption lines, whether they coincidently enter the blood stream directly or not. The tissues of the diaphragm take a distinctly active part in absorption from the peritoneal sac and that other areas of parietal peritoneum functionate little if any in the lymphatic absorptive process. Therefore the postoperative postural treatment of pelvic peritonitis as advocated by Fowler has definite pathologic foundation.

24. **Postoperative Peritoneal Adhesions.**—In five cases in which no other means than simple careful technic and covering of the operative area with omentum or mesenteric strips were used by the authors, adhesions resulted in only one case, this being one in which adhesions to the uncovered area were found, the covered areas in the same case being free. In eleven cases in which some type of oil was used in the endeavor to limit adhesions, these were formed in nine cases. In one of the cases in which adhesions were absent, peritonitis caused the death of the animal, only a single case being free from adhesions or peritonitis. In all eleven cases more or less extensive exudation was present. In seven of the eleven cases in which oil was used the phagocytic index was tested, and in all except the first experiment with liquid petrolatum the index was markedly reduced, and even in this case it was not normal. Oil in any form causes an intense exudation of leukocytes into the abdomen and these are inhibited from their normal physiologic function by the presence of the oil, as indicated by the low phagocytic index. Thus it is stated by the authors that oil is contra-indicated, if for no other reason than that anything which causes local migration of these cells and then checks their action simply increases the bulk of foreign material with which the tissues have to deal.

Another interesting fact in respect to oil was noted in that during the first four days following the injection of oil there was an excessive amount of exudation of fluid into the cavity, then in the next four days there seems to be a decrease in the amount of fluid, followed in the last four days of a twelve-day period by again increasing amounts. The explanation offered is that the presence of the oil in the abdomen primarily calls forth an intensive cell exudation. In the process of adjustment absorption begins and the amount is temporarily decreased, but as soon as absorption begins, the lymphatics become plugged with oil and cell detritus and the further increase in the exudation is held within the cavity. This condition then remains for a long period, extensive exudation being present three weeks to a month after operation. That the oil is gradually absorbed by the lymphatics is shown by the presence of oil droplets in the lymphatics of the mesentery and broad ligaments in cases allowed to go for a long period. From experiments with the use of citrate solutions involving seven cases, there was not a single satisfactory result.

25. **Technic of Cholecystectomy.**—Judd's technic does not vary in many essentials from that often described. The important step in the operation is the complete freeing of the cystic duct before it is cut.

26. **Surgery of Pancreas.**—Experiments were made by Sweet and Simons to determine if a part of the pancreas could be separated from the remainder of the organ and successfully implanted in the gut. The processus uncinatus was cut off from the head of the organ, the duct in the proximal stump ligated, and the end of the uncinate process simply implanted in the intestine by dropping it through a longitudinal slit in the gut; which was then carefully closed by fine sutures. The three animals in this series were autopsied after six, five and four weeks. In all three cases the duct in the implanted portion was patulous and of normal size. In two there was no apparent atrophy of the pancreatic tissue. One had atrophied to one-third of the original size; microscopic study of the tissue showed no abnormalities. There was no fat necrosis, perfect anastomosis, and a very few adhesions. The other part of the pancreas was of course entirely normal.

In the second series of three animals an artificial obstruction was attempted by ligature of the ducts with implantation into the intestine of the proximal end of the pancreas after cutting off the uncinate process. The first dog was autopsied after five weeks, and it was found that the new opening into the gut had closed, while a new duct had formed around the ligature of the major duct. The second dog died a week after the operation from distemper pneumonia, and even in this short time a new duct had formed around the ligature of the duct. The third dog, autopsied after five weeks, showed the same result—a new duct circumventing the ligature of the duct. None of these cases showed any gross changes in the organ, no pancreatitis, fat necrosis, or atrophy. In the third series the pancreatic ducts were cut between ligatures and the omentum was interposed between the ends of the ducts in an attempt to prevent the reformation of these ducts. The proximal stump, after excision of the uncinate process, was anastomosed with the intestine. This operation was tried in two cases which were autopsied four weeks after operation. The implanted duct was *patulous. The ducts had not reformed and there was no* evidence of pancreatitis, or fat necrosis, or atrophy.

Archives of Diagnosis, New York

January, VIII, No. 1, pp. 1-100

32 Pathologic Physiology. J. B. Deaver, Philadelphia.
33 Diagnosis of Abnormalities of Myocardial Function. T. S. Hart, New York.
34 Differential Diagnosis Between Acrodermatitis Chronica Atrophicans and Diffuse Idiopathic Atrophy of Skin. F. Wise, New York.
35 Diagnostic Value of Hyperesthesia of Solar Plexus and Its Relation to Gastropaths. M. Schott, Cleveland.
36 Plea for More Frequent Examination of Lower Bowel in Diagnosis of Disease. J. Gutman, Brooklyn.
37 Colon Bacillus Exaltations. B. G. R. Williams, Paris, Ill.
38 Recognition of Pretuberculous Stage and Early Symptoms of Tuberculosis. A. C. Geyser, New York.
39 Early Diagnosis of Incipient Pulmonary Tuberculosis. C. C. Lawhorn, Milwaukee, Wis.
40 Tetanism. H. B. Sheffield, New York.
41 Cavernous Angioma of Liver in Baby Six Weeks Old. II. Congenital Absence of All Abdominal Muscles. A. Stern, Elizabeth, N. J.
42 "Psycho-Analysis" Word Capable of Wide Usefulness. J. M. Taylor, Philadelphia.

Boston Medical and Surgical Journal

March 11, CLXXII, No. 10, pp. 357-392

43 Superstition and Doctor. O. Wister, Philadelphia.
44 Ten Cases of Diverticulum of Bladder. H. Cabot, Boston.
45 Splenic Anemia. Report of Case. P. E. Truesdale, Fall River.
46 Disturbances of Stomach. H. F. Hewes, Boston.
47 Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. Analysis of One Hundred and Thirty-Four Microscopically Proved Cases. T. W. Harmer, Boston.

Cleveland Medical Journal

February, XIV, No. 2, pp. 81-176

48 Prognosis and Treatment of Acute Nephritis. J. Phillips, Cleveland.
49 Perirenal and Peri-Ureteral Tumors. C. A. Hamann, Cleveland.
50 Ventral Hernia. F. E. Bunts, Cleveland.
51 Digitalis. W. G. Alpers, Cleveland.
52 Epithelioma of Pharyngeal Mucosa in Fowl. D. Marine, Cleveland.
53 *Effects of Chelidonin on Smooth Muscles in Intact and Surviving Organs. P. J. Hanzlik, Cleveland.

53. **Effects of Chelidonin on Smooth Muscles.**—Chelidonin is the alkaloid of Chelidoneum majus, which belongs to the *Papaveraceae*. Its empirical formula as given by Schmidt is $C_{20}H_{19}NO_5$, and the most soluble salts are the phosphate and sulphate. In 1892, Meyer studied the general or systemic effects of chelidonin and found them to be closely similar to those of morphin, with the important difference that chelidonin produces practically no subsequent irritation of the central nervous system. Hanzlik undertook to ascertain

the effect of chelidonin on surviving organs and those functions in which the presence of smooth muscle plays an important rôle. Briefly, chelidonin promptly abolishes the spontaneous contractions of the following excised organs: esophagus, fundus and pylorus of the frog's stomach, intestine of cat and rabbit, and pregnant uterus of guinea pig. It removes the effects of pilocarpin, pituitrin, histamin and barium chlorid on surviving organs.

The peripheral blood vessels of the frog previously contracted by epinephrin are more rapidly dilated by chelidonin than by Ringer's solution alone. There is very little or no effect on the untreated vessels. The constriction of the bronchial musculature by histamin in the surviving lungs of the guinea pig is removed by chelidonin. Bronchoconstriction does not occur with mixtures of histamin and chelidonin. Rabbits previously treated with large doses of chelidonin do not show bronchial spasm with the same doses of histamin as untreated rabbits. Chelidonin has no demonstrable effect on the pupil of the excised eye of the frog. In the living rabbit intravenous injection of chelidonin depresses intestinal peristalsis, and large doses remove the stimulant effect of pilocarpin. It appears that chelidonin exerts its main effects on smooth muscle. Therapeutically, chelidonin in Hanzlik's opinion should prove beneficial in the treatment of such symptoms as asthma, colic and various other enteralgias and gastralgias, and particularly in pediatric practice.

Journal of Abnormal Psychology, Boston

February-March, IX, No. 6, pp. 369-436

54 Freud and His School. (To be continued.) A. W. Van Renterghem, Amsterdam.
55 Psychologic Understanding. C. G. Jung, London.
56 Professor Janet on Psycho-Analysis: Rejoinder. E. Jones, London.
57 Freudian Psychology and Psychic Research. H. Carrington.
58 Stammering as Psychoneurosis. I. H. Coriat, Boston.

Journal of Experimental Medicine, Lancaster, Pa.

March, XXI, No. 3, pp. 193-287

59 Relation Between Structure of Epidermis of Rat and Guinea-Pig, and Proliferative Power of Normal and Regenerating Epithelial Cells of Same Species. K. C. Spain, St. Louis.
60 *Liver Function as Influenced by Anesthetics and Narcotics. G. H. Whipple and J. S. Speed, Baltimore.
61 *Cultivation of Treponema Pallidum. H. Zinsser, J. G. Hopkins and R. Gilbert, New York.
62 *Mechanism of Abderhalden Reaction. J. Bronfenbrenner, Pittsburgh.
63 Serum Proteases and Mechanism of Abderhalden Reaction. J. W. Jobling, A. A. Eggstein and W. Petersen, Nashville, Tenn.
64 Influence That Serum Exerts on Trypanosomes. B. T. Terry, New York.
65 Different Amounts of Transformed Atoxyl Produced by Incubating One per cent. and Ten per cent. Atoxyl in Blood. B. T. Terry, New York.
66 Effect of Heat on Transforming and Binding Power of Blood. B. T. Terry, New York.
67 *Influence of Anterior Lobe of Pituitary on Growth of Carcinomata. T. B. Robertson and T. C. Burnett, Berkeley, Cal.

60. **Liver Function as Influenced by Anesthetics and Narcotics.**—Whipple and Speed found that ether anesthesia for a period of two hours usually causes a depression in the phthalein curve during the twenty-four hours following the anesthesia. Paraldehyd in doses sufficient to give anesthesia and stupor for a few hours will give a definite fall in phthalein output when given in considerable amounts. Alcohol causes a drop in the phthalein curve when given in large doses sufficient to cause stupor for a few hours. The drop in phenoltetrachlorphthalein excretion is demonstrated in the twenty-four hours following administration of the drug. A drop in the phthalein curve to two-thirds or one-half of normal indicates a definite liver injury and temporary impairment of function.

61. **Cultivation of Treponema Pallidum.**—The authors believe that the general method of obtaining profuse growth of *Treponema pallidum* in fluid medium without agar, composed of mixtures of slightly acid broth (acidity of 0.2 to 0.8 per cent.) and sheep serum (or ascitic fluid, or horse or rabbit serum) containing autoclaved tissue, in long necked flasks covered with paraffin oil, provides an excellent method of obtaining mass cultures for experimental work and for concentrated luetin preparations. They obtain mass cultures by cultivating for three weeks or longer in these flasks, then centrifugalizing for a short time in large tubes to remove clumps of precipitated protein, decanting and then centrifugalizing at high speed in small tubes to throw down the organisms. Since many of the treponemata are entangled in the sediment first precipitated, a larger yield can be obtained by grinding this sediment in a mortar with salt solution and treating this material separately.

62. **Mechanism of Aberhalden Reaction.**—Bronfenbrenner regards the Aberhalden reaction as being specific. He says that the properties of serum on which it depends develop in experimental animals simultaneously with antibodies during the process of immunization. It is impossible to observe by direct methods the presence of digesting ferments in the blood of immune animals. The Aberhalden test may be resolved into two phases. A dialyzable substance appears in the second phase and is the result of the autodigestion of serum. The autodigestion of serum in the Aberhalden test is due to the removal of antitrypsin from the serum by the sensitized substratum.

67. ***Influence of Pituitary on Growth of Carcinomata.***—Robertson and Burnett propagated the Flexner-Jobling carcinoma by inoculation into the axillary region through two generations. The percentage of takes was high, varying between 60 and 80 per cent. Half grown or adult animals were employed to propagate the tumors, and also in the experiments. Ox pituitaries were dissected out of the connective tissue capsule and the anterior lobe was separated, macerated between two surfaces of ground glass, and mixed with M/6 sodium chlorid solution in such proportion that the final volume of the mixture was three times that of the glandular tissue. Four per cent. of tricresol was added and the mixture was shaken and allowed to stand at room temperature for not less than twelve hours. After further shaking the mixture was filtered through glass-wool under pressure. The filtrate was employed in the experiments detailed; it was freshly prepared from time to time. Three c.c. were equivalent to 1 c.c., namely, to approximately 1 gm. of glandular tissue. The administration of emulsions of the anterior lobe of the ox pituitary increased very markedly the rate of growth of the primary tumor in rats inoculated with carcinoma. The growth of small tumors was accelerated relatively more than that of large tumors. This acceleration was only evidenced, however, at a certain stage in the growth of the tumor, subsequent to the twentieth day succeeding inoculation. The administrations did not enhance the tendency of the tumors to metastasize. Liver emulsion did not cause an acceleration of the growth of carcinomata in rats.

Journal-Lancet, Minneapolis

March 1, XXXV, No. 5, pp. 109-134

68 Feeding of Healthy Infant. E. J Huenekens, Minneapolis.
69 The Inebriate. G. H. Freeman, Willmar.
70 Diagnosis of Intracranial Complications in Diseases of Middle Ear *and Accessory Sinuses of Nose. J. C. Beck, Chicago.*
71 Treatment of Gonorrheal Ophthalmia. A. E. Smith, Minneapolis.
72 Vaginal Hysterectomy Under Spinal Anesthesia. Report of Case. R. R. Cranmer, Minneapolis.

Journal of Outdoor Life, New York

February, XII, No. 2, pp. 33-83

73 Mississippi Valley Tuberculosis Conference. S. C. Kingsley, Chicago.
74 Status of Antituberculosis Work in Mississippi Valley. E. M. Hendriksen, Grand Rapids, Mich.
75 Need of Uniformity in Antituberculosis Education. G. T. Palmer, Springfield, Ill.
76 Chicago Plan for Municipal Control of Tuberculosis: Chicago Municipal Tuberculosis Sanatorium and Its Auxiliary Agencies. T. B. Sachs, Chicago.
77 Publicity—Most Powerful Factor in Indiana's Antituberculosis Fight. W. D. Thurber.
78 Kentucky Wakes Up. R. L. French.
79 Iowa's Ten-Years' Fight. A. E. Kepford.
80 Ohio Public Health Federation. R. G. Paterson.
81 Fight Against Tuberculosis in Cleveland. R. H. Bishop, Jr., Cleveland.
82 Problems of Tuberculosis in Negro of South. D. S. Wilson, Louisville, Ky.
83 Tuberculosis and Negro. A. W. Williams, Chicago.

Kansas Medical Society Journal, Topeka

February, XV, No. 2, pp. 37-70

84 Surgical Treatment of Intestinal Stasis Due to Cecum Mobile and Coloptosis. G. M. Gray, Kansas City.
85 Gleanings from Principal European Eye and Ear Clinics. H. C. Markham, Parsons.
86 Microscope as an Essential to Diagnosis, Prognosis and Treatment of Gonorrhea. P. S. Mitchell, Iola.

Lancet-Clinic, Cincinnati

March 6, CXIII, No. 10, pp. 253-278

87 *Hemolysis Following Transfusion of Blood. B. M. Bernheim, Baltimore.
88 Experimental Studies in Production of Chronic Gastric Ulcer. W. W. Hamburger, Chicago.
89 What Is Atony of Stomach? H. W. Bettmann, Cincinnati.
90 Injury of Head with Oncoming Epilepsy, Negative Abderhalden Reactions, Operation, Drainage of Cyst. B. Holmes, Chicago.

87. Abstracted in The Journal, Nov. 14, 1914, p. 1785.

Medical Record, New York

March 13, LXXXVII, No. 11, pp. 421-462

91 Syphilis of Stomach. Report of Cases. M. Einhorn, New York.
92 *Treatment of Pyorrhea Alveolaris and Its Secondary Systemic Infections by Deep Muscular Injections of Mercury. B. L. Wright and P. G. White, U. S. Navy.
93 Oral Osteitis in Its Relation to Arthritis. B. C. Darling, New York.
94 Neglected Lateral Curvature. M. Strunsky, New York.
95 Clinical Treatment for Systemic Goiter (Graves' Disease). M. S. Macy, New York.
96 New Method of Increasing Efficiency of Vaccines and of Producing Antiserum. J. S. Wight, Brooklyn.
97 Simple Syringe Method for Transfusion of Citrated Blood in Children. A. Zingher, New York.
98 New Baby Bottle. R. D. Moffett, New York.

92. **Treatment of Pyorrhea Alveolaris by Injections of Mercury.**—Wright and White have treated twenty-eight consecutive cases, all of which have been completely cured in remarkably short periods of time. Of these, nine, or 32.1 per cent., had systemic infections in all probability secondary to pyorrhea, six of these being chronic arthritis, one chronic gastritis, one chronic bilateral facial neuralgia, and one chronic laryngitis. In addition, two others had gonorrheal arthritis. All of these systemic infections, including the cases of gonorrheal arthritis, were also cured. The longest period of time required to effect a cure was forty-one days, the shortest four days. Greatest number of injections required to cure the primary infection in one case six, smallest number one.

The local treatment as administered by White embraces the following: Careful expression of the pus from the pockets, thorough removal of calcareous deposits and tartar wherever found, the extraction of hopeless teeth and roots, polishing of tooth structure, followed by applying to the margin of the gums equal parts of tincture of iodin, tincture of aconit and chloroform continued every other day. The injections of mercuric succinimid should be commenced with the local treatment. The initial injection in a male patient should be 5/5 grain repeated every seventh day, or depending on the condition of the patient, the dose of each succeeding injection may be slightly reduced. In females the dose should be from 1/5 to 2/5 grain less.

Military Surgeon, Chicago

March, XXXVI, No. 3, pp. 205-304

99 Sanitary Work of Army at Vera Cruz. H. P. Birmingham, U. S. Army.
100 Sterilization of Drinking Water by Calcium Hypochlorite in Field. W. J. Lyster, U. S. Army.
101 Proposed Method of Pitching Field Hospital. W. W. Reno, U. S. Army.
102 Mess Efficiency. P. C. Fauntleroy, U. S. Army.
103 Guide to Facilitate Organization and Administration of Independent Sanitary Commands in Field. G. P. Peed, U. S. Army.

New York Medical Journal

March 13, CI, No. 11, pp. 493-548

104 Treatment of Mental Affections as They Are Met with in General Practice. F. X. Dercum, Philadelphia.
105 Syphilis and Its Modern Treatment. V. C. Pedersen, New York.
106 *Diaphragmatic Hernia of Stomach and Omentum. M. S. Kakels and S. Basch, New York.
107 Roentgen-Ray Prevention of Nasal Diseases. S. Tousey, New York.
108 Extensive Creeping Eruption. J. L. Kirby-Smith, Jacksonville, Fla.
109 *How Tetanus May Be Aborted. M. B. E. Sutton, New York.
110 Passive Congestion of Liver Simulating Abdominal Tumor. C. R. Robins, Richmond, Va.
111 Protective Shield for Holmes Nasopharyngoscope. M. Lubman, New York.
112 Septal Perforation in Narcotic Habitués. P. M. Lichtenstein, New York.
113 Christian Science Cures. H. K. Craig, Washington, D. C.
114 Nature and Pathogenesis of Epilepsy. L. P. Clark, New York.

106. **Diaphragmatic Hernia of Stomach and Omentum.**—Kakels and Basch report a congenital case in a male, aged 54 years, with the sac and its contents passing over into the right thoracic cavity. Trouble began two years ago, when, without any assignable cause, he experienced a pain across his upper abdomen, mild at first, but persisting and gradually associated with a feeling of abdominal distention. There was no nausea, chill, vomiting, or dyspnea, but he felt very weak and had drawn face and cold extremities. The next day he remained in bed and another physician was called in, found a much distended abdomen. He resumed business the second day, but for four or five weeks occasionally had sharp pains across the epigastrium, which were relieved by a hot water bag. Early in December, 1913, he had a similar but much milder attack, which was also relieved by a hot water bag. Since the attack of two years ago, he has had frequent attacks of nausea and belching, beginning usually in the late afternoon, often preventing the eating of his supper and gradually, as the hours passed, getting more severe and relieved only by repeated forced vomiting. The vomitus at first consisted only of a little mucus, then increasing amounts of very sour tasting whitish or yellowish fluid, up to two quarts or more, never, however, containing any food. Often he would be kept awake all night and then would be too exhausted to get up, but seldom missed more than one day from business. These attacks had no definite relation to the quantity or quality of his food; they occurred at first about every two months, but since two or three months about once a week. During the intervals between attacks, he had no indigestion whatever. In the last two years he lost about 35 pounds; his strength and appetite were also much diminished, and a moderate degree of sitophobia had developed.

The operation was in the nature of an exploratory laparotomy for the peculiar gastric disturbances. On opening the peritoneal cavity the greatly distended transverse colon, covered with enlarged vessels, presented itself, occupying the region of the stomach. On pulling this out of the way the gastrocolic omentum and the whole of the great omentum were pulled down and the pyloric end of the stomach was all there was seen emerging from an opening high up in the diaphragm on the left side and behind the liver near the left crus, between the pars vertebralis and the pars costalis. The rest of the stomach with the whole of the great omentum was in the thoracic cavity, outside of and behind the pericardium. After having withdrawn the omentum and the enormously enlarged stomach (three times its natural size), the entire hand was readily introduced into the opening, which was found to extend upward and inward into the right thoracic cavity, through the posterior mediastinum. The greatly distended and enlarged stomach had a distinct constriction about it near the pyloric end, resembling an hour-glass stomach. The stomach had to be pulled from the thorax with considerable force, and when released receded to its abnormal position. The reduction of the hernia on account of the negative pressure above the diaphragm was unsuccessful. The radical cure of this large hernia seemed hopeless. There was a great deal of shock following the manipulations, and the patient succumbed thirty-six hours later. At the autopsy no pleurisy, pneumonia, or peritonitis was found. There was no omentum or stomach in the abdomen except the pyloric end protruding from an opening in the diaphragm. The sac containing the stomach and great omentum was found in the right thoracic cavity reaching as high as the second rib. The hernial sac was made up of peritoneum, lining the under surface of the diaphragm and the parietal pleura of the thoracic cavity.

109. **How Tetanus May Be Aborted.**—Sutton advises to wash the wound with water first, then with hydrogen peroxid; next soak in tincture of iodin U. S. P., and put in an iodin pack, removed every twenty-four hours till danger of infection is past.

Oklahoma State Medical Association Journal, Muskogee

March, VII, No. 10, pp. 307-346

115 Primary Gland Tuberculosis of Mesentery. Report of Case. W. D. Berry, Muskogee.
116 Specialist as He Appears to Us. D. A. Myers, Lawton.
117 Treatment of Pannus. J. B. Ferguson, Sallisaw.
118 Nose, Anatomically Considered with Special Reference to Reflexes and Constitutional Diseases. W. E. Dixon, Oklahoma City.
119 Injuries of Eyeball and Its Appendages. E. F. Davis, Oklahoma City.
120 Heterophoria. M. K. Thompson, Muskogee.

Public Health Journal, Toronto

March, VI, No. 3, pp. 103-150

121 Recent Developments in Sewage Disposal. G. W. Fuller, New York.
122 Some Aspects of Whooping Cough. G. A. Campbell.
123 Are Our Training Schools Educative? M. A. MacKenzie.

Surgery, Gynecology and Obstetrics, Chicago

March, XX, No. 3, pp. 253-380

124 *Uterine Prolapse with Associated Pelvic Relaxation. C. H. Mayo, Rochester, Minn.
125 *Unusual Cases; Points in Diagnosis and Treatment: 1. Calcified Lymph Gland Producing Symptoms of Gall Stones. 2. Old and Infected Abdominal Pregnancy with Extension of Long Bones into Bladder and into Bowel. 3. Case of Adenomyoma of Rectovaginal Septum. 4. Operation for Radical Cure of an Umbilical Hernia in Patient Weighing 464 Pounds. 5. Removal of Large Tuberculous Cyst of Mesentery of Jejunum, Together with Corresponding Segment of Bowel; Recovery; Later Death, Apparently from Tuberculous Meningitis. T. S. Cullen, Baltimore.
126 Points in Surgical Treatment of Acute Intestinal Obstruction. S. J. Mixter, Boston.
127 *Radium Treatment of Fibroid Tumors. H. A. Kelly, Baltimore.
128 *Cancer of Prostate. E. S. Judd, Rochester, Minn.
129 Wisdom of Past, Prophecy of Future. J. W. Long, Greensboro, N. C.
130 *Gall Stones During Course of 1,066 Abdominal Sections for Pelvic Disease. R. Peterson, Ann Arbor, Mich.
131 *Experiments in Production of Abortion and Labor by Use of Placental Extracts. A. H. Curtis, Chicago.
132 *End Results of Treatment of One Hundred Cases of Fracture of Elbow; Immobilization in Hyperflexion Combined with Early Passive Movements and Massage. H. Neuhof and H. F. Wolf, New York.
133 *Cure of Cancer of Uterus by Curetting for Diagnosis. H. J. Boldt, New York.
134 Ovarian Tumors in Pregnancy. W. C. Danforth, Evanston.
135 Complete Removal of Adenocarcinoma of Uterus by Exploratory Curettage. Report of Three Cases. L. J. Ladinski, New York.
136 Some Rare Fetal Teratisms—Sympodia, Craniopagus and Acephalus. W. A. N. Dorland, Chicago.
137 Scopolamin Seminarcosis. G. C. Mosher, Kansas City, Mo.
138 Thoracotomy in Unresolved Pneumonia. R. Winslow, Baltimore.
139 Successful Treatment of Bichlorid Poisoning Case by Hydraulic Irrigation Through Cecostomy Operation. J. H. Anderson, Pittsburgh.
140 Extraperitoneal Cesarean Section. Report of Two Cases. J. S. Lawrance, Greensburg, Pa.
141 Operative Treatment of Fractures. W. R. Jackson, Mobile, Ala.
142 Electric Motor for Use in Bone Work. R. E. Farr, Minneapolis.
143 *Gall-Bladder Infections: Their Treatment from Surgical Viewpoint. L. Frank, Louisville, Ky.
144 *Results of Radium Treatment in Uterine and Rectal Cancers. Report of Twenty-Three Cases. H. Schmitz, Chicago.

124. Abstracted in The Journal, Jan. 23, 1915, p. 366.

125. **Unusual Cases; Points in Diagnosis and Treatment.**—The cases reported by Cullen are the following: 1. A calcified lymph-gland embedded in adhesions and lying against the cystic and common bile ducts, producing symptoms somewhat suggestive of gallstone. 2. An old and infected abdominal pregnancy with extension of the long bones into the bladder and into the bowel. 3. A case of adenomyoma of the rectovaginal septum. 4. Operation for the radical cure of an umbilical hernia in a patient weighing 464 pounds. With the patient standing, the dependent portion of the abdomen reached the knees. As the omentum was adherent to the hernial sac the transverse colon was markedly drawn downward. The hernial sac was divided into numerous secondary cavities. 5. Removal of a large tuberculous cyst of the mesentery of the jejunum, together with the corresponding segment of bowel; recovery; later death, apparently from tuberculous meningitis. The cyst was globular, occupied the center of the upper abdomen and was partly covered by adherent red and greatly thickened omentum. Below it was adherent to several loops of small bowel. The omentum was severed near the transverse colon and the loops of small bowel were liberated. The cyst was then gradually loosened, as far as feasible, from its attachment to the mesentery. The cyst walls varied from 2 to 3 mm. to 1 cm. or more in thickness. The inner surface presented a friable, worm-eaten appearance and the pus was odorless, rather thin, and greenish yellow in color. At the cut ends of the jejunum the mucosa was practically normal, but a section near the center of the loop showed marked thickening of the bowel wall, together with much narrowing. The glands in the mesentery were considerably enlarged. The ends of the bowel which were held by forceps were closed and a lateral anastomosis was then made. This was a rather difficult procedure on account of the shortness of the remaining portion of the jejunum.

127 and 128. Abstracted in The Journal, Jan. 23, 1915, p. 367.

130. **Gallstones in 1,066 Abdominal Sections.**—Among these 1,066 patients gallstones were found by Peterson 135 times, or in 12.66 per cent. of the cases. The high percentage of gallstones in this series, Peterson says, may be due to one or more of three factors: The relative high average age of the patients examined, the high percentage of women who had borne children; or, finally, to the large proportion of uterine and ovarian neoplasms present in the women examined for gallstones. Except when contra-indicated by the condition of the patient or the possibility of contaminating clean peritoneum, Peterson, says, the gall-bladder should always be palpated when the abdomen is opened for pelvic disease. Hence, the small abdominal incision should give way to one large enough to permit of thorough exploration of the abdominal cavity. When gallstones are removed at the time of pelvic operations, from 85 to 90 per cent. of the patients will have no subsequent symptoms referable to the gall-bladder, provided the proper technic be employed. When gallstones are not removed either because their mere presence is not though to warrant their removal or because the condition of the patient forbids further operative procedure, 30 per cent. of the patients will suffer subsequently from gallstone attacks or other symptoms referable to the gall-bladder. Therefore, Peterson concludes, since gallstones are always liable to produce symptoms and at times are a distinct menace to the patient, they should be removed when the abdomen is opened for pelvic disease, if this can be done without much additional risk to the patient.

131. **Abortion and Labor by Placental Extracts.**—Sixteen pregnant rabbits and guinea pigs were given extract of human placenta in normal salt solution by Curtis. In four instances pregnancy progressed undisturbed, evidently because the amount injected was very small. Three advanced cases littered within forty-eight hours. In nine cases, in which pregnancy was less advanced, absorption or abortion of the embryos occurred in every instance. The absence of corpora lutea in animals which came to autopsy was a noteworthy finding, as was also the presence of large corpus luteum cysts in the one guinea pig subjected to two injections of placental extract. Ten pregnant guinea pigs were injected with defibrinated blood from pregnant and puerperal women. Five progressed to term. In two cases the results were doubtful; in three there occurred absorption or abortion of the embryos. Subcutaneous injection of normal salt solution in two control animals did not disturb the development of pregnancy. Six control pregnant guinea pigs were injected with defibrinated blood from normal non-pregnant women. In every instance pregnancy was undisturbed and was followed by litter of healthy pigs. Seven pregnant guinea pigs were given extract of guinea pig placenta in normal salt solution. Pregnancy progressed (delayed?) to term with a litter of

normal offspring in five instances. One case terminated in abortion, and one in absorption of the embryos. The injection of four pregnant guinea pigs with blood from puerperal and pregnant guinea pigs was followed by litter of healthy pigs. In one instance birth may have been premature.

132. **Results of Treatment of Elbow Fracture.**—No selection of material was made by Neuhof and Wolf, the 100 cases in which the final result could be determined being taken in succession. They include simple and comminuted fractures, supracondylar fractures, and those of the humerus that enter the joint, fractures of the upper end of the radius and ulna; in short all the types of fracture at the elbow joint. Recent cases are not included. The final discharge with a perfect result was made in 53 per cent. of the cases; the remaining 47 per cent. presented results more or less imperfect. Patients finally discharged with a perfect result were referred for mobilization and massage at periods averaging 12.8 days after fracture. Patients finally discharged with an imperfect result were referred for mobilization and massage at periods averaging 32.1 days after fracture. Six patients of the series were operated on. A perfect result was not obtained in any of the cases operated on and subsequently were sent for mobilization and massage. The authors emphasize that hyperflexion does not mean merely acute flexion; it is the most acute flexion in which the elbow can be fixed without obliterating the radial pulse. Massage and mobilization are applied daily in the great majority of the cases. Although massage may be instituted immediately after the injury, an absolute rule for the time to begin mobilization cannot be made. Mobilization may be tentatively essayed as soon as the fourth or fifth day after the fracture.

133. Abstracted in The Journal, Jan. 30, 1915, p. 466.

143. Abstracted in The Journal, Nov. 21, 1914, p. 1878.

144. **Radium Treatment of Cancer.**—Schmitz reports twenty-three cases. He states that in inoperable cases the immediate results of radium treatment are good; hemorrhage, pain and profuse putrid discharges cease. This improvement is only of short duration and additional applications of radium do not bring about an improvement. The results, however, equal those of any other known treatment. Only one of twelve cases so treated has shown encouraging results. Recurrent cancers, if far advanced, are very refractory to radium treatment. The result of radiotherapy is practically nil. However, in beginning and localized recurrences, radium seems to produce pronounced beneficial results and is the most valuable therapeutic agent we possess. Schmitz points out that final conclusions regarding the use of radium in uterine and rectal cancers cannot be drawn until more time for observation has elapsed. The primary results, however, have been very promising.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

October, XI, No. 130, pp. 433-464

1 Case of Kala-Azar. T. R. Whipham.
2 Case of Hyperplastic Tuberculosis of Tunica Vaginalis. F. C. Pybus.
3 Four Cases of Rectal Polypus Occurring in One Family. A. F. Hertz.

November, No. 131, pp. 465-496

4 Status Lymphaticus. H. Thursfield.
5 *Vaccine Treatment of Scarlet Fever. D. MacIntyre.
6 Complete Occlusion of Trachea Due to Injury to Cricoid Cartilage After Intubation and Tracheotomy. Operation and Recovery. D. F. Riddell.

December, No. 132, pp. 497-559

7 *Early Development of Myositis Ossificans Progressiva Multiplex Illustrated by an Apparently Congenital or Almost Congenital Case. F. P. Weber and A. Compton.
8 Nervous Cretinism. R. McCarrison.

January, XII, No. 133, pp. 1-32

9 Three Cases of Tetanus Cured by Subcutaneous Injections of Antitetanic Serum. J. Comby.
10 Acute Pemphigus Complicating Scarlet Fever. J. M. Robertson-Ross.
11 *Case of Unexplained Edema and Pemphigus in Convalescence from Scarlet Fever. R. L. Wilcox.

February, No. 134, pp. 33-64

12 Case of Chronic Lymphoid Leukemia with Much Temporary Benefit from Benzol Treatment. H. D. Rolleston and J. D. Rolleston.
13 Infection of Middle Ear with Vincent's Organisms. J. Adam.
14 Perforation of Arch of Aorta by Safety Pin Impacted in Esophagus. E. G. L. Goffe.

5. **Vaccine Treatment of Scarlet Fever.**—Five cases of septic scarlet fever were treated in the acute stage by MacIntyre with autogenous streptococcic vaccine, the organisms in one case being cultivated from the nose and in the others from the throat. An initial dose of 10 million was given and this was doubled at intervals of five days until the temperature dropped to the normal level. All the patients recovered, but three developed otitis. MacIntyre states that it could not be said that the vaccine had any definite effect in any of the cases. Autogenous vaccine was also used in the treatment of nasal and ear discharges. In most cases no attempt was made to isolate all the bacteria. The cultures were made on ordinary agar and incubated for twenty-four hours. The organisms were then suspended in normal saline to which 0.5 per cent. phenol had been added, and afterward heated in a bath at 60 C. (140 F.) for an hour. An initial dose of 100 million was given and this was repeated at intervals of five days, the number of organisms being increased at each successive injection until a maximum of 1,600 million was reached. Out of twenty-eight cases of nasal discharge treated, twenty-three were cured, but five showed no improvement after eight doses. In two of the latter cases numerous diphtheroid bacilli were present in the discharge, which was slight in amount but persisted for several weeks. With regard to ear discharge, fourteen cases were treated, of which eight recovered while six remained chronic. In the unsuccessful cases the infection was very mixed, diphtheroid organisms being present in the discharge in three cases and bacilli of the coli group in two cases.

7. **Myositis Ossificans Progressiva Multiplex.**—The case cited by Weber and Compton is an example of the commencement of myositis ossificans progressiva in a baby, the first signs of the disease in the present patient having been almost, if not quite, congenital. The early diagnosis was due to the appearance of diffuse, hard, painless, transient lumps or swellings at various parts of the patient's body, similar in character to those described by A. E. Garrod. The effect of traumatism as an occasional exciting cause of the local manifestations of the disease is illustrated in the present case by the occurrence of the first "lump" (namely, the swelling on the left side of the neck) a few days after a slight fall on the left shoulder, and is still further illustrated by the development of bony lumps at the site of one of the biopsy incisions and at the site of the fibrolysin injections. The disease appeared in this case to be due to a congenital, but not inherited, tendency to the formation of fibrous tissue and bone in striped muscles (that is to say, in the connective tissue normally belonging to the muscles), especially at the site of, and as a result of, traumata (even slight traumata) of various kinds. The case also shows that the growth of the newly formed bone in myositis ossificans progressiva does not necessarily proceed from the periosteum, as it seems to do in cases of ordinary traumatic localized myositis ossificans ("rider's bone," etc.). The bony lump at the site of an incision into the vastus externus muscle of the right thigh developed quite far from any periosteum. How little an ordinary inflammation of muscle (myositis in the strict sense of the word) has to do with the disease is shown in the present case by the results of microscopic examination of the diseased muscle before any local bone formation had occurred, and likewise by the practical absence of fever or constitutional disturbance during the exacerbations. The authors believe that there is something to be said in favor of such a term as "hyperplasia fascialis ossificans progressiva." The disease appears histologically to be an ossifying hyperplasia of the fascia and connective tissue of the striped muscles, especially the muscles of the trunk. In the early stages of the disease, however, the muscular swellings constituting the exacerbations sometimes subside without the immediate occurrence of any local ossification at the site of the swellings.

11. **Edema and Pemphigus from Scarlet Fever.**—The interesting features in Wilcox's case are that the pemphigus occurred in convalescence from scarlet fever, that it was preceded by an unexplained edema, and that otherwise the attack of scarlet fever was free from any complications.

Practitioner, London

February, XCIV, No. 2, pp. 179-342

15 Theory of Internal Secretions. C. E. de M. Sajous.
16 Thyroid Insufficiency. L. Levi.
17 The Pancreas. C. von Noorden.
18 Internal Secretions of Alimentary Canal. W. L. Brown.
19 Use of Hormones in Medicine. G. R. Murray.
20 Use of Hormones in Gynecologic and Obstetric Disorders. W. B. Bell.
21 Use of Hormones in Children's Diseases. H. E. Waller.
22 Hormones in Relation to Diseases of Skin. J. M. H. MacLeod.
23 Internal Secretions and Psychoses. T. B. Hyslop.
24 Thyroid Insufficiency in General Practice. J. P. Granger.

Bulletin de l'Académie de Médecine, Paris

February 9, LXXIII, No. 6, pp. 169-211

25 *Results of Direct Electrization of Nerve Trunks. (Electrisation directe des troncs nerveux dans la plaie opératoire chez les blessés atteints de traumatismes des nerfs.) P. Marie.
26 Treatment of Freezing Injuries. (Sur les gelures.) E. Delorme.
27 Discussion of Treatment of Wounds of the Nerves. (Blessures des nerfs par projectiles.) S. Pozzi and Others.
28 *Embolism of Central Artery of the Retina. Teillais.
29 *Tubercle Bacilli in the Blood of Young Infants. (La bacillémie tuberculeuse primitive du premier age.) A. Jousset.
30 *Autohemotherapy in Treatment of Typhoid Fever. F. Ramond and G. Goubert.
31 *Psychopathic Polyuria. A. Mathieu.

25. **Direct Electrization of Nerve Trunks Injured in War.**—Marie gives an illustrated description of an electrode, for exploratory tests of nerve functioning, which has the advantage over others that it can be sterilized. With this it is possible to estimate the amount of damage done to the nerve and the correct treatment to be applied. It also permits the identification of the nerve fibers involved in the trauma. Different tracts of fibers in the nerve trunk innervate different groups of muscles, and in suturing the nerve it is indispensable that the continuity of these tracts be restored. Failure to realize this means that, although the trunk nerve has been sutured, yet functioning is impossible because the wrong bunches of fibers have been coaptated, and continuous transmission of the special nerve impulse is impossible. The electrode is made of two glass tubes, fastened side by side, through which the wires are brought, bent zigzag to hold their place in the tubes. A smaller glass tube, tapering to a point, fits into the end of each tube, and the nickel or platinum wire electrode emerges from the tip of the outer smaller tube. The wires connecting with the battery are strung close with glass beads to facilitate handling. The electrode tips of the two wires are curved toward each other so that the space between is short.

28. **Embolism of the Central Artery of the Retina.**—Teillais says that in his forty cases of this kind seven of the patients were pregnant women. The pregnancy had passed the sixth month in each case. The changes in the composition of the blood due to gestation and the tendency to stagnation in the venous circulation readily explain why previously healthy women are liable to this serious eye trouble.

29. **Tubercle Bacilli in Infants' Blood.**—Jousset recalls that when a guinea pig is inoculated with tubercle bacilli, bacillemia results before any lesions have had time or chance to develop, and suggests that a similar bacillemia probably occurs in infants when tuberculous infection is first installed. He has examined the blood of a large number of infants under 3 months of age and has been amazed at the number of cases with positive findings in the blood when nothing else suggested tuberculosis. The tubercle bacillus does not live a saprophytic existence, and consequently its presence in the fresh cadaver blood indicates an actual pretuberculosis bacillemia. The infants present the ordinary picture of gastro-intestinal disturbances and athrepsia (infantile atrophy). A regular decline in weight and persisting diarrhea, which nothing seems to explain, are the usual findings with this bacillary toxi-infection. The tuberculin tests are almost always negative in the cases in question. He cites as typical illustrations six infants from 5 to 10 weeks old and two from 6 to 7 months old. All had been regarded as examples of typical athrepsia, but all showed tubercle bacilli in the blood with no other signs of tuberculosis.

30. **Autohemotherapy in Typhoid.**—Ramond and Goubert published four years ago their favorable experiences with subcutaneous injection of the patient's own blood in treatment of various infectious diseases. The blood is drawn from a vein and at once reinjected into the cellular tissue close to the vein, thus giving the blood no chance to cool or coagulate. They reported benefit from the procedure, and their experience with it in fifty recent cases of typhoid fever has corroborated their previous announcements. The temperature goes up a trifle at first but then falls below what it had been and the general condition materially improves. The results were very good in 38 per cent. of the cases; moderate in 18, and negative in 44 per cent. The procedure is repeated every day if benefit is noted, in connection with ordinary measures.

31. **Polyuria.**—Mathieu remarks that in every case of polyuria the physician starts out with the idea that the polyuria must first prove that it is not connected with diabetes mellitus. This, he thinks, is wrong. The first step should be to exclude polyuria from excessive drinking, possibly merely a habit of drinking too much fluids, which is easily broken up. Or the habit may be of hysteric origin, a hysteric potomania, which may be arrested by suggestion. In other cases the potomania may be one manifestation of a severe inherited nervous taint, and in such degenerates it is usually refractory to both suggestion and education. If these psychopathic polyurias are excluded before further study of the polyuria in a given case, much time and trouble will be saved.

Berliner klinische Wochenschrift, Berlin

February 15, LII, No. 7, pp. 145-172

32 Epidemics in War. (Entstehung und Ausbreitung der Kriegsseuchen.) F. Hueppe. Concluded in No. 8.
33 *Practical Suggestions for Treatment of Tetanus. B. Heile.
34 Callus Production After Injury of Bones. D. v. Hansemann.
35 To Locate Metal Foreign Bodies in the Tissues. (Der Kugelsucher.) H. Schmidt.
36 Intracutaneous Injection and Anaphylaxis. G. Blumenthal.
37 No Effect on Urate Deposits from Thorium X. (Thorium X und Harnsäure.) E. Kuznitzky.

33. **Treatment of Tetanus.**—Heile calls attention to a fulminating case of tetanus which developed the twenty-first day after the shell wound. The man was recovering from his injury when a correcting operation was undertaken, opening up a fistula, and the tetanus developed four days thereafter. The germs must have been already in the wound but quiescent until roused by the later operation. Another point which Heile emphasizes is the behavior of the reflexes in tetanus; the reflexes in the part involved become exaggerated as the toxic action of the tetanus germs is felt more intensely. When he finds the knee jerk in a wounded limb exaggerated and growing constantly more pronounced, he accepts this as a sign that tetanus is already installed although there may be no other sign or symptoms of it. He administers magnesium sulphate at once, in amounts sufficient to reduce the reflexes to normal.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 13, XLV, No. 7, pp. 193-224

38 Typhoid Among the Swiss Troops Guarding the Border. (Einige Typhusfalle aus dem Militärdienst.) R. Staehelin.
39 The Mercury Vapor Lamp to Sterilize Water for Surgical Purposes. (Die Quecksilberquarzlampe im Dienste der Kriegschirurgie.) O. Stiner.

Deutsche medizinische Wochenschrift, Berlin

February 11, XLI, No. 7, pp. 181-212

40 *Caramel in Antidiabetic Diet. F. Umber.
41 Acute Fatal Poisoning from Benzol Fumes. A. Heffter.
42 *Tubercle Bacilli in the Blood. E. Rumpf and J. Zeissler.
43 *Experiences with Wounds of the Lungs. (Lungenschüsse.) F. Unterberger.
44 *Gas Bacillus Sepsis. C. Bingold.
45 Physical Examination of Volunteer Recruits. (Erfahrungen bei der Untersuchung von Kriegsfreiwilligen.) S. Kaminer and A. da S. Mello.
46 To Lift the Severely Wounded. (Handgriff zum Heben Schwerkranker und Verwundeter.) Heddaeus.

47 *Simple Test for Iodin in Body Fluids. (Der einfachste und schnellste Nachweis von Jod im Urin, Speichel und in anderen Körperflüssigkeiten.) J. Schumacher.
48 Prevention of Crippling. O. Vulpius.

40. **Caramel in Antidiabetic Diet.**—Umber's experience is confirming Grafe's statements in regard to the availability of caramel for diabetics. They seem to be able to digest and assimilate properly this product of the thorough polymerization of sugar by heat. The caramel of the kitchen is only partially polymerized. Umber gave it to patients with mild or moderate diabetes, in the form of dessert or strewed on an omelet, and there was no increase in the sugar content of the urine. In the severer cases, however, the glycosuria increased in a few instances, so the tolerance should be tested before feeding the caramel in the more serious cases.

42. **Tubercle Bacilli in the Blood.**—Rumpf and Zeissler compare their experimental and clinical findings with those of others, their conclusions being that the bodies found so frequently in the sediment of human blood are by no means all tubercle bacilli, no matter how close the resemblance.

43. **Wounds of the Lungs.**—Absolute rest is the main thing in treatment, Unterberger emphasizes. The patient should be left in peace; moist heat may give relief, and a sedative may stop the cough for the first few days. After the danger of hemorrhage is past, an expectorant is given, with heart tonics as needed. In fifty-six of his sixty-five cases the lung had been the only organ wounded, and notwithstanding the severity of the disturbances at first, nearly all that reached his hospital (Königsberg) promptly recovered and a number have returned to the front.

44. **Gas-Bacillus Sepsis.**—The extreme yellowish-brown discoloration of all the skin and the suffocation were the main features of the sepsis which proved fatal within two days of the shrapnel injury from which it started. The discoloration was evidently from destruction of the blood corpuscles, and the lack of oxygen-bearing corpuscles was responsible for the prolonged dyspnea.

47. **Test for Iodin in Body Fluids.**—Rubbing the fluid into a little calomel is regarded as the simplest test for iodin but even this takes time. Schumacher suggests the use of blotting paper impregnated with a 2 per cent. solution of selenous acid. The paper turns blue if there is any iodin in a drop of fluid deposited on it. The test can thus be applied to urine from twenty different persons and the response noted, all in one minute. He warns that the reagent paper does not keep well over long periods, and describes still another technic free from this drawback.

Jahrbuch für Kinderheilkunde, Berlin

February, XXXI, No. 2, pp. 97-182

49 Pathologic Anatomy of Tuberculosis in Children. (Kindertuberkulose.) A. Ghon and B. Roman.
50 *Serotherapy of Scarlet Fever. (1335 Scharlachfälle, die mit dem Moserschen Serum behandelt wurden.) L. Axenow.
51 *Disease of the Nasal Sinuses in Infants. (Die Nasennebenhöhlenerkrankungen in den ersten Lebensjahren.) A. Onodi.
52 *Automatic Movements During Sleep; Three Cases. (Seltene Formen kindlicher Schlafstörung.) F. Hamburger.
53 Ehrlich's Differential Reaction in the Urine in Acute Infectious Diseases. (Paradimethylamidobenzaldehydreaktion von Ehrlich im Harn bei scharlach-, masern- und diphtheriekranken Kindern, sowie bei verschiedenen Mischinfektionen.) E. Rachmilewitsch.

50. **Serotherapy in Scarlet Fever.**—This communication from Petrograd extols serotherapy in the severer cases as the only means known to date which is able in some cases to ward off the fatal outcome. It must not be given later than the third or fourth day, and the dose must not be fractioned. It should be reserved for the severer cases and for children more than a year old. Kidney complications are extremely rare in those given serum treatment, but the course of the disease does not seem to be shortened. The best results were realized always when streptococci were found in the blood. The serotherapy was applied in 1,335 of the 21,000 cases of scarlet fever in the last nine years.

51. **Disease of the Nasal Sinuses in Young Children.**—Onodi has compiled from the records 53 cases of this kind; in 23 it seemed to be a complication of scarlet fever; in 8 cases the antrum was diseased at birth; 2 infants were 26 days old when the sinusitis was discovered in the antrum of Highmore; another case was in an infant 18 days old with ethmoidal sinusitis. Radical operative treatment is as necessary for infants as for adults; it cured the children completely in 37 of the 53 cases, including 5 cases in which the frontal, ethmoidal, maxillary and sphenoidal sinuses were all involved. Seven of the children died, including 3 scarlet fever patients. Schlemmer cured an 18-day-old infant by opening up the ethmoidal cells, and Canestro by opening up the maxillary sinus. Killian operated on the frontal sinus and the 15-months' babe died. In the 16 operative cases of which the details are known, there were 7 scarlet-fever cases, and the operation was a success in all but one case in which the child died.

52. **Habit Movements During Sleep.**—The children were two boys of 4 and 7 and a girl of 12. The latter lay prone during sleep, with her hands crossed under her face, and for hours at a time she pounded her brow against her hands with a regular rhythm. One boy lay prone and kept pounding his head against the pillow. The younger boy rose on his knees and arms and made regular movements with his body, keeping this up hours at a time. All were cured after months or years of these habits by a week or so in the hospital in which they were kept at first under the influence of sedatives.

Medizinische Klinik, Berlin

February 14, XI, No. 7, pp. 179-206

54 *Joint and Other Bone Wounds in War. (Zur Behandlung und Beurteilung infizierter Gelenk- und Knochenschüsse.) H. v. Haberer.
55 Wounds of the Lungs. (Lungenschüsse.) H. Gerhartz.
56 Epidemic Meningitis Simulating Typhus. (Flecktyphusartiger Verlauf von Genickstarre.) F. Umber.
57 *Intensive Artificial Light Treatment of Wounds in War. E. Breiger.
58 *Pyelitis of Pregnancy. (Die Nierenbeckenentzundung der Schwangeren.) R. Franz.
59 *Enlargement of Lymph Glands at the Elbow with Chronic Polyarthritis. V. Ellermann.
60 *Cancer Family. (Zur familiären Häufung des Carcinoms.) H. Peiser.

54. **Wounds of Joints.**—Von Haberer comments on the remarkable freedom from infection of so many of the wounds of joints. Those which heal without infection far outnumber the infected cases. When a splint had not been applied, to keep the joint immovable, the bandage usually worked off during the trip to the base hospital and infection was inevitable; any kind of a splint prevented this. His experience at Innsbruck has confirmed the folly and danger of draining a joint wound from the first. Fixation and leaving the joint alone are the best treatment at first, and even when there are pains, and the joint and lymph glands swell and the temperature runs up to 40 C. (104 F.) with small rapid pulse and dry tongue, a few hours' rest in bed with the limb in the best position will often do wonders for the soldiers exhausted from their long railroad journey. Gas phlegmons, of course, call for immediate action, but otherwise operative treatment is not required unless the fever, pains and swelling keep up. Then he punctures the joint at several points and, wherever pus or a purulent effusion is encountered, he makes a small incision and introduces a retention rubber drain, rinsing out with a 1 or 4 per cent. solution of formaldehyd if the secretions are thick. The functional outcome is much better with multiple small incisions than when the joint is opened up extensively, and the lesion heals fully as well.

The dressings require changing only when they are too soaked to absorb further; moist dressings impede free discharge. He refrains from disturbing the shattered bones in the depths of the wound, but applies extension or passive movements as indicated. In his fifty cases of severe suppurating injury of large joints, amputation was done in only one instance. When there is general sepsis, amputation is of no avail. In several such cases necropsy showed that the joint lesion was healing well; treatment should be directed against the septicemia and the man should not be weakened further by a futile amputation. Youth and good constitution often bring the man through even in these severe cases. He gives an illustrated description of several cases treated on these principles with complete success. Extension in semiflexion with the limb suspended can be easily improvised. Secondary gravity abscesses must be watched for.

57. **Phototherapy for Wounds in War.**—Breiger comments on the revolution in opinion in regard to the therapeutic action of sunlight, the mercury-vapor light and others, since Finsen and Rollier's day, and pleads for their extensive use in treatment of wounds in war. In sixty-five cases in which he has applied phototherapy in its various forms the lesions healed unusually fast and the scar tissue was strong; suppuration was checked early and necrotic tissues were cast off promptly while blood and serous infiltrations in the region were absorbed more rapidly than under other conditions. The mercury-vapor light is called in Germany the "artificial mountain sunlight" as it has about as many ultraviolet rays as the sunlight at moderately high altitudes. He applies different forms of phototherapy, reserving the ultraviolet rays for the more torpid lesions. Old rebellious furunculosis and severe acne were promptly cured by the mercury-vapor light after failure of all other measures perseveringly applied.

58. **Pyelitis of Pregnancy.**—Franz declares that the current assumption that the pyelitis of pregnancy does not require special treatment is wrong and misleading. In the milder cases the symptoms may subside without active measures, but whether or not the lesion has healed is another question, and time often proves that it has not. Severe pyelitis, on the other hand, is always a danger for both mother and child. Opitz found that in 40 per cent. of such cases there was premature delivery. The focus in the kidney pelvis is liable to breed puerperal fever or spread to involve the kidney proper, with or without pyonephrosis and concrements. Treatment should be conservative at first, including copious drinking and the administration of salol or methylene blue if the urine is acid, and of hexamethylenamin, boric acid, etc., with alkaline urine, supplemented by local disinfection of the bladder and lying on the sound side to promote the emptying of the kidney pelvis. If the clinical manifestations do not subside promptly under this, then a retention catheter should be introduced into the ureter and the kidney pelvis rinsed out with a silver salt solution; as a last resort, interruption of the pregnancy or a nephrotomy. The pyelitis must not be regarded as cured until bacteria and pus can no longer be found in the urine; direct disinfection of the kidney pelvis through the ureter catheter generally accomplishes this.

59. **Enlarged Glands with Chronic Polyarthritis.**—Ellermann found enlarged lymph glands at the elbow in 50 per cent. of the 28 adult patients with typical chronic polyarthritis. In nearly all, one or more other groups of glands were enlarged and in a number the joint trouble had begun with an acute onset, the spleen enlarging also. The heart seemed to be sound in all his cases.

60. **Cancer Family.**—Peiser removed a small lump from the breast of a man of 33. The microscope showed nothing malignant, but it was learned that cancer of the breast was prevalent in the man's family, all commencing in this way. It was found in the women in three generations before him, and three of his four uncles and aunts had died of cancer of the breast, stomach or tongue, and the fourth of tuberculosis; his one cousin had cancer of the breast at 38.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

January, XLI, No. 1, pp. 1-108

61 *Active Substance Isolated from Ovary and Placenta. (Wirksame Substanz im Eierstocke und in der Placenta.) E. Herrmann.
62 Cholelithiasis and Pregnancy. J. A. Amann.
63 *Retention of Placenta and Puerperal Fever. G. Winter.
64 *Plastic Operation on the Mouth of the Fallopian Tubes to Restore Permeability. (Klinische Erfahrungen über Salpingo-Stomatoplastik.) E. Löhnberg.

61. **Active Substance Isolated from the Ovaries and Placenta.**—Herrmann reviews the work of other authors in preparing extracts from the ovaries and placenta, and then describes in detail his method of obtaining in pure form an active principle from these organs that seems to be a chemical entity. He separated the corpus luteum from the rest of the ovary, so that it is purely a corpus luteum substance. The substances from the corpus luteum and the placenta are identical, but a placenta contains a greater amount. It is a thick yellow oil that turns brown in the air from oxidation. It is a derivative of cholesterin, and is soluble in alcohol, ether, aceton and benzol, but not in water.

The animal experiments in which he tested the action of the substance are described. During the course of the preparation the substance had various injurious effects on the animals, but, when obtained pure, it had no bad effect. Its effect in stimulating the growth and development of the sexual organs was very powerful. Young animals 8 weeks old, after five days' injections showed the sexual development of animals from 25 to 30 weeks old. When the injections were continued, changes similar to those of the rutting period or early pregnancy took place. The mammary glands of both male and female animals were markedly developed. The substance also contributes to the development of secondary sexual characters. Its action in this line proves, he says, that the development of the mammary gland is dependent on the secretion of the corpus luteum and placenta. Eight colored plates are given showing the macroscopic changes in the genital organs after injections, and fifteen figures in the text show the microscopic changes. There is a bibliography of about sixty titles.

63. **Retention of Remnants of Placenta and Puerperal Fever.**—Winter holds, in contrast to the usually accepted opinion, that puerperal fever is not caused by retention of remnants of placenta; it only happens that they coexist in many cases. He admits that auto-infection from bacteria in the vagina is both possible and frequent, but he is convinced that the bacteria in the uterus are derived from without, infecting the wall, and that this occurs whether or not there is retained placenta. In support of this idea he cites statistics from his own clinic: Among 149 cases of retention of placenta the puerperium was afebrile in 66, or 44 per cent.; it was slightly febrile in 75, 50 per cent.; and there were 8 severe cases of fever, with one death. But in 4 of these severe cases there had been an operation that might have been responsible for the infection.

In order to demonstrate from the necropsy findings that the infection was caused by the retained placenta, it would be necessary to show that the entire thickness of the placenta was infested with bacteria, down to the maternal vessels. In all the cases examined by Winter he found bacteria only in the peripheral part of the placenta. The reason he thinks it so important to decide this question is that the old conception of it makes it imperative to empty the uterus of the retained remnants at once; in so doing an opportunity is created for further infection.

64. **Plastic Operation on the Tubes.**—In 1885 Martin resected a piece of the tube, turned back the mucous membrane and sutured the mucous and serous coats together so as to form a new ostium. He performed this operation in sixty-five cases, and among forty-seven that he was able to examine later, only two had conceived after the operation. This technic has not been very extensively used since then. Gellhorn stated in 1911 (The Journal, June 24, 1911, p. 1912) that up to that time thirteen successful cases of salpingostomy had been reported in international literature. Löhnberg reviews briefly the cases reported since then, and discusses twenty-one cases in which he performed this salpingostomatoplastic operation at his own clinic between 1908 and 1913. He thinks the operation justified in chronic inflammatory conditions of the tube in which the walls are not very much damaged; also in moderate degrees of hydrosalpinx if we are sure that there is no recent inflammatory process; also in perisalpingitic processes that have caused adhesion and occlusion of the tube.

Of course, it is useless to perform the operation unless the whole length of the tube is permeable, which should be determined beforehand by the introduction of a sound. It is absolutely contra-indicated in pyosalpinx, and should be performed only in comparatively young women who have had few children or none at all and who desire to remain capable of conception. The average age in Löhnberg's cases was 26 years; none of these patients was over 30. Recovery after the operation was uneventful. In two of the cases he was obliged to perform another laparotomy later—for retroflexion, however; not for any condition produced by the salpingostomy. The new-formed mouth was found grown up again. In the fourteen cases that he was able to examine later, pregnancy had not occurred once. Pregnancy does not often follow the operation, but he thinks the psychic effect on the woman who desires children of the possibility of renewed conception is worth enough to compensate for the slightly increased danger of extra-uterine pregnancy. He thinks this danger does exist, but chiefly in cases in which there were previously such changes in the tubes as to favor the occurrence of extra-uterine pregnancy.

Münchener medizinische Wochenschrift, Munich

February 9, LXII, No. 6, pp. 177-216

65 *Salvarsan-Natrium. W. Wechselmann and G. L. Dreyfus.
66 *Dysentery among the Troops (Die Dysenterieerkrankungen der Kriegsverwundeten) T. Rumpel. (Erfahrungen aus der letzten Dysenterieepidemie.) G. Singer.
67 Excessive Hairy Growth and Precocious Puberty in Girl of 3. (Hirsutismus.) W. Herzog. Concluded in No. 7.
68 Medicolegal Decisions Affecting Physicians. (Der Arzt in der Rechtsprechung. VIII.) P. Kaestner.
69 Clinical Importance of Arrhythmia. (Herzarrhythmie.) K. F. Wenckebach.
70 *Treatment of Nerves Wounded in War. (Behandlung verletzter Nerven im Kriege.) A. Stoffel, A. Hoepfl and L. Drüner.
71 Treatment of Radial Paralysis. (Hebeapparat für Hand und Finger bei Radialislahmung.) H. Spitzy.
72 Wounds of the Intestines. (Schussverletzungen des Darmes.) Röper.
73 Wounds from Grenade Fragments. (Verletzungen durch Granatsplitter.) H. T. Kölliker and L. Basl.
74 Experimental Research on Magnesium Sulphate in Tetanus. (Wesen und Aussicht der Tetanustherapie mit Magnesiumsulfat.) G. Mansfeld.
75 Action of Different Kinds of Bullets on the Tissues. (Wirkung der regelrechten Infanteriegeschosse und die der Dumdumgeschosse auf den menschlichen Korper.) G. Perthes.
76 Treatment of Long Bones Fractured in War. (Schussfrakturen langer Röhrenknochen.) H. Els. Commenced in No. 5.

65. **Salvarsan-Natrium.**—Reports are here given of the use of this new preparation of salvarsan as applied at Berlin and Frankfurt. It is said to have the same action as the original salvarsan, while it is readily soluble and does not require any preliminary alkaline admixture. In short, it is claimed that it combines the more intensive action of salvarsan with the simple technic of neosalvarsan. Dreyfus made the injections mostly on outpatients.

66. **Dysentery and Typhoid.**—Rumpel states that the blood and stools of soldiers with intestinal trouble have shown that the Flexner bacillus is widespread in northern France, while it is rare in Flanders and Russia. Typhoid and paratyphoid carriers were found in 4.62 per cent. of 130 soldiers free from intestinal trouble. He urges that such carriers should be kept out of the army, as also all with Shiga-Kruse bacilli, but the Flexner carriers are too numerous to detain, as the Flexner type is not very serious. The bacilli had all disappeared within a period up to sixty days in his experience, but in the Hagenau epidemic 139 healthy carriers were found along with the 232 sick, and thirteen of the carriers were known to harbor the bacilli from 137 to 404 days. He remarks that the proportion of healthy typhoid and paratyphoid carriers found anywhere seems to depend on the number of bacteriologists available for the research. "Seek and ye shall find" seems to be the rule everywhere.

Singer expatiates on the importance of direct visual inspection of the rectum as the only reliable means for prompt differentiation of dysentery. In his experience with 600 cases the bacteriologic findings were often misleading. Only in less than 20 per cent. could typical findings be obtained. Rectoscopy is also important for the prognosis in many cases; even when the cure seemed to be complete and the patient had returned to normal food, the rectoscope was liable to reveal ulcers in the lower bowel, angry or torpid. He insists now on rectoscopy in every case before the patient is discharged as recovered. Obstinate constipation frequently developed during convalescence, sometimes accompanied with bradycardia and higher temperature. It yielded to antispasm measures alone. Among the complications noticed were severe pains in various muscles or joints, neuralgia and conjunctivitis. Serotherapy was tried in thirty cases and the general condition seemed much improved by it, but no influence was apparent on the local process. In twenty-five cases normal horse serum was injected and it seemed to have equally good effect. In a number of cases intravenous injection of a hypertonic salt solution gave relief and the patients recovered. It seemed to bind the toxins in the blood or anchor the complement.

70. **Treatment of Nerves Injured in War.**—Stoffel's operative work on nerves has been repeatedly mentioned in these columns. An illustration in The Journal, Oct. 11, 1913, p. 1415, shows the importance in every operation on a nerve of considering the various sensory and motor tracts of fibers in each nerve. This knowledge is especially needed in operating on nerves injured by a bullet or fragment of a shell. He warns not to separate the nerve from its bed until the last minute, as the stumps must be guarded against twisting. This would prevent the coaptation of the fiber tracts; motor tracts might be sutured to sensory tracts, which would retard restoration of function. The stretching of the stumps to bring them into contact should be done before the ends are freshened. It is usually necessary to pass the needle through some of the nerve tissue itself to obtain a stout hold. When this is the case, the sensory tracts should be selected, carefully avoiding touching the motor tracts. He advises expelling the blood as an aid to operating on a nerve, and after it is sutured he encloses it in a sheath. For this he generally uses a calf's artery or vein, stuffed with cotton and hardened in formaldehyd. A cuff is cut from this long enough to extend each side 1 or 2 cm. beyond the suture. It is slit lengthwise and wrapped around the sutured portion and tied with catgut. Then a muscle or fat flap is sutured to cover the sheath and the skin is then sutured. In all cases of injury of a nerve, the parts must be kept thereafter in an attitude that brings the stumps closest together. This prevents much retraction, which is a serious obstacle to attempts to restore the continuity of the nerve. If the limb is kept for three or four weeks in a position that prevents the gaping of the injured nerve, it will have grown together and to adjacent tissues so that further contention is not necessary. He regards this preliminary treatment as of vital importance for the operation later. If the nerve happens to be taut at the time it is wounded, the injury is more serious, as a relaxed nerve may give way before the bullet and thus escape damage.

Therapeutische Monatshefte, Berlin

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77 *Present Status of Electrotherapy. (Ergebnisse der Elektrotherapie 1913-1914). J. Kowarschik.
78 Radiotherapy in' Gynecology. (Gynákologische Strahlentherapie.) T. Heynemann.
79 To Ward Off Vermin. (Zur Prophylaxe und Vertreibung des Ungeziefers im Felde.) K. Herxheimer and E. Nathan.
80 Influence on the Circulation of Suction and Other Mechanical Means to Act on the Abdomen. (Wirkung der mechanischen Beeinflussung des Abdomens auf die Zirkulation.) F. Kirchberg and C. Wehmer.
81 Mercury, Arsenic and Iron Compound for Treatment of Syphilis. (Chemotherapie der Syphilis mittels anorganischer Kombination von ›Quecksilber, Arsen und Jod.) P. v. Szily and H. Friedenthal.

77. **Present Status of Electrotherapy.**—Kowarschik declares that we are entering on a new era in the field of electrotherapy, as the mechanical technic has been so perfected, while our knowledge of the biologic and therapeutic action of electricity has been deepened in recent years. The theory of electrons and ions has provided a scientific basis for therapeutic action, a basis more solidly planted, he insists, than we have for the action of most of our drugs. He adds that if physicians dispute this statement it is only because they lack accurate knowledge of the theoretic-physical foundations for present-day electrotherapy. As recent progress, he mentions the improvement of the technic for faradization by the Bergonié method and of the technic for the high-

frequency current by the diathermy method. He gives a critical review of seventy articles on the continuous, the alternating and the high-frequency current that have appeared in the last two years.

Among the favorable accounts of ion treatment published recently is that of Aufaure with acute and subacute articular rheumatism treated by driving a 10 per cent. solution of sodium salicylate directly into the joints with the electric current. He found the effect superior to that with internal administration of the drug; the sittings had to be at least an hour in length. Friel has reported excellent results in treatment of chronic nose and ear disease and sinusitis. He uses for otitis media, for example, a 1 per cent. solution of zinc sulphate, with a current of 2 or 3 milliamperes, at a ten-minute sitting, repeated at eight or ten-day intervals. Sometimes a single sitting completed the cure. About half the cases of sinusitis thus treated were cured and a large proportion of the middle-ear cases. A number of recent writers have expatiated on the remarkable disinfecting action of zinc ions in treatment of local streptococcus and staphylococcus skin affections, such as furuncles or lymphangitis. A 2 per cent. solution of zinc sulphate was used as a rule; the effect was more striking the earlier it was applied. The sittings were thirty minutes long and repeated three times a week with a just bearable current. Iontophoresis applied to rabbits after subcutaneous inoculation with staphylococci prevented the development of an infectious process; this occurred also when the ions were applied before the microbes were injected into the region.

The effect of the electric current on abnormally high numbers of leukocytes was mentioned in these columns Nov. 15, 1913, p. 1853, when Veraguth's communication on the subject was summarized. He found that the whites dropped from 99,000 to 62,000 in one case of leukemia when a galvanic 5-milliampere current had been applied for fifteen minutes, the large electrodes placed on the abdomen, back or thighs. Benefit from mild application of the high-frequency current in treatment of pyorrhea alveolaris was reported by Arnal in 1913. Zeynek and Bergonié have improved the technic for diathermy and formulated the indications, and the field for its application seems to be constantly widening. Unna has reported excellent results from it in leprosy and Santos in acute gonorrhea, but with the latter the danger of burning the urethral tissues is too imminent for the treatment to come into general use. Eye and ear affections seem to offer a specially favorable field for diathermy, as also malignant growths of all kinds, Kowarschik remarks in conclusion.

Wiener klinische Wochenschrift, Vienna

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82 *Infected Wounds of Arteries. (Infizierte Gefässschüsse.) H. Heyrovsky.
83 *Indirect Effects of Shell Explosions. (Erkrankungen nach Granatexplosionen.) I. P. Karplus.
84 *Hyperthyroidism from the Standpoint of Military Medicine. (Kriegsmedizin.) M. Kahane.
85 To Ward Off Lice. (Zur Prophylaxe der Pedikulosis.) S. Weidenfeld and E. Pulay.
86 Treatment of Wounds in War. A. von Eiselsberg.

82. **Infected Wounds of Vessels.**—This report from Hochenegg's surgical clinic at Vienna states that a large artery had been injured in thirty of the 1,710 wounded soldiers there treated. There was tardy secondary hemorrhage in twenty-one cases, and three of the men died. The fatal outcome in each was due to ascending thrombosis above the ligature thrown around the injured artery. The ligature had been applied too close to the point of injury, in the effort to spare an important branch above. The consequence was profuse hemorrhage in one case and the fatal thrombosis in three others. The men might have been saved if the ligature had been applied higher, where the tissue was absolutely sound. In the nine non-infected cases recovery was prompt and complete, but amputation became necessary in six of the infected cases.

83. *Injury from Shell Explosions.*—Karplus comments as a neurologist on the favorable prognosis of the psychogenic disturbances liable to follow explosion of a shell close at hand. During the first few days there is evidently some physical shock, but under rest and psychic measures, especially the positive assurance of a speedy cure, the man rapidly recovers. The nature of the injury seemed to influence the symptoms less than the preceding state of the nervous system. In the few cases in which the disturbances persisted, unmodified by neurologic treatment, it was learned that the men had been under treatment for some nervous affection before the war. In one case exophthalmic goiter developed after the explosion; in a few others, diabetes.

84. **Hyperfunctioning of the Thyroid Among the Wounded.**—Kahane remarks that the war has demonstrated to the world in compelling fashion the absolute indispensability of the services of the physician—a matter which in times of peace is too often disregarded by the authorities. It is imperative on medical men now, he declares, to apply in the care of the sick and wounded in the war the results of medical progress in recent years. Chief among these he ranks the knowledge we have acquired in regard to the thyroid as a factor in various morbid conditions. Far too often conditions for which excessive functioning of the thyroid is responsible are mistakenly labeled hysteria, neurasthenia, neuroses or anemia, and treated futilely on this assumption. He protests against classing all disturbances from hyperthyroidism as "complete" or "incomplete types" of exophthalmic goiter. True Basedow's disease is comparatively rare, and it affects the female sex predominantly. Hyperthyroidism, on the other hand, is a very frequent condition, affecting both sexes impartially, especially young and middle-aged adults, and it has a direct interest for military medicine which cannot be said of true exophthalmic goiter. The manifold manifestations of hyperthyroidism become more distinct and understandable when we disabuse our minds completely of the abstract notion of Basedow's disease. The same reasoning applies also to the other extreme, myxedema. It is possible for the thyroid to functionate to excess and then defectively in succession.

A number of the symptoms which result from abnormal thyroid functioning are usually ascribed to other causes. Few think of examining the thyroid when a patient complains of accelerated heart action after comparatively slight exertion subsiding to normal in repose, loss of weight, tremor, sensations of heat, tendency to sweat and to diarrhea, restlessness and irritability. Any one of the above should suggest possible thyroid mischief. The mere aspect of the eyes, a kind of rigidity and brilliancy, attracts the attention of an expert to the thyroid at once. With any of the above symptoms, examination of the thyroid should be a routine procedure. The action of the thyroid on the vascular system occurs through the mediation of the vasomotor nerves; it is evident not only in the tachycardia and increased pulse after slight exertion but also in the inability to stand caffein and similar substances. The question whether the vicissitudes of a campaign are able to elicit hyperthyroidism is still undecided, but there can be no doubt that they can fan into a flame a hitherto latent predisposition. This assumption is sustained by the fact that the features of a campaign are the exact opposite of the measures advocated in treatment of exophthalmic goiter, including the physical exertion, the excitement, and the free use of tea, coffee and meat. Kahane regards hyperthyroidism as liable to incapacitate for military service, and he expatiates on the importance of an early diagnosis, as under appropriate treatment conditions soon right themselves. He bases the diagnosis mainly on what he calls galvanopalpation: The negative electrode is fastened to some remote part of the body, and with the needle-tipped positive electrode the region of the thyroid is lightly and repeatedly touched. When the thyroid is functioning to excess, the touch of the electrode is felt intensely and the region turns very red, the color persisting a long time. With positive findings, physical and mental repose is required; the diet should be restricted to milk and vegetables, and the thyroid and nerve trunks in the vicinity should be given galvanic electric treatment, and phosphates should be taken internally.

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THE CEREBROSPINAL FLUID IN HEALTH AND DISEASE*

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The theme of my address is one of entrancing interest to the thoughtful observer, whether from the purely physiologic or the purely clinical point of view. Probably no system of human anatomy, physiology or pathology has been the object of a more intensive study than the cerebrospinal system, from the contributions of the earlier writers to the present day. And yet, with all our knowledge of the anatomy of the brain and spinal cord in their normal state, and of the pathologic processes to which they are subject, how extraordinary it is that of the fluid in which these tissues are forever bathed, so little is known. We are not always, however, to remain in the dark. Hidden truths will soon be revealed, and the year or two just past has been extraordinarily productive. From the many contributions that have appeared in recent times, from the laboratory and clinics of various countries, new light has been shed on some of the mysteries of this ambient fluid. This subject, therefore, is a timely one, of interest alike to the surgeon and to the neurologist, and the hour may be spent profitably in taking stock, as it were, of our knowledge of the cerebrospinal fluid, in the light of modern interpretation.

What is the origin of the cerebrospinal fluid? The original conception of the cerebrospinal fluid as a transudate, has long since been discarded. When Pettit and Girard, in 1902, published their monograph on the secretory function and morphology of the choroid plexus, based on a study of the structure of the plexus in different classes of vertebrates, and on the histologic changes in the gland following the administration of substances with a hypersecretory effect, there seemed little room for doubting that the cerebrospinal fluid was a secretory output. Mott[1] added his testimony to the hypothesis after a comparison of the lachrymal gland and the choroid plexus. Between the two he saw a strong similarity, and on the basis of his own histologic studies and evidence from other sources, he postulated that the choroid plexus *was* a gland with an *external* secretion.

As still further proof of the secretory theory, stands the intravitam staining experiments of Goldmann,[2] who, in his study of the fetal nervous system, found that intracellular glycogen was demonstrable only in the plexus cells. This substance was not held back by the cells, but secreted drop by drop and diffused with cerebrospinal fluid throughout the entire nervous system. Thus the cerebrospinal fluid is charged with important metabolic products, the destination and function of which we must consider later.

The impermeability of the choroid plexus, as shown by Goldmann[2] may be offered as further evidence in favor of the secretory theory. When foreign toxic substances were injected into the circulation, the choroid plexus acted as an impermeable filter and prevented their entrance into the cerebrospinal fluid; on the other hand, when the dye was injected into the subarachnoid space, the brain and cord were at once stained. Have we not in this phenomenon a side light on salvarsan therapy? It is a well-known fact that after salvarsan is injected intravenously, only an infinitesimal amount of arsenic, if any, can be recovered from the cerebrospinal fluid. Is this not to be attributed, in part at least, to the character of the choroid plexus? Thus it would seem more rational to inject salvarsan or salvarsanized serum directly into the ventricles or subarachnoid space in cerebrospinal lues. It has been proved[3] conclusively, that there is no lack of affinity between the brain substance and arsenic, but it is possible, as suggested by McIntosh,[3] that the walls of the cerebral capillaries may be so constructed that they will not permit the passage of arsenic as do the capillary walls in other parts of the body. However this may be—whether the failure of the salvarsan to reach the brain cells is due to the non-permeability of the plexus, to the refusal of the plexus cells to secrete arsenic, to a peculiarity of the cerebral capillary walls, or to a combination of the three causes—the difficulty may be surmounted by an intraventricular or subarachnoid injection of the salvarsan.

To return to my argument in favor of the choroid plexus as the source of the cerebrospinal fluid, have we not in the artificial hydrocephalus, which I have produced in the laboratory, a very suggestive bit of testimony? And what of the decided increase in the rate of flow, such as Dixon and Halliburton[4] observed after the injection of the extract of choroid? And again, if the pressure of the cerebrospinal fluid is the same as that of the capillaries, there can be no escape of fluid from the capillaries in the form of a filtrate or transudate.

Has the cerebrospinal fluid a dual source? On the operating table with brain surface exposed, under conditions of high intracranial pressure, one sees drops of fluid appearing on the surface, as though the fluid came directly from the brain substance itself or from its blood vessels, an observation which Spina made also in his experimental work. There are a number of observers with whom I am disposed to agree, Weed,[5] Plaut, Rehm and Schottmüller,[6] and Hauptmann,[7] who concede that the greater part of the fluid is derived from the choroid plexus, but hold that some is derived from the perivascular system of the nervous tissues. In a case of internal hydrocephalus with complete obstruction of the ventricles, Dandy and Blackfan[8] were able to recover by lumbar puncture 5 c.c. of cerebrospinal fluid which reformed in a short time—quite positive evidence, it seems to me, of an extraventricular source of the fluid, inasmuch as no fluid from the plexus could possibly reach the subarachnoid space.

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* Read at the annual meeting of the Section on Neurology and Psychiatry of the New York Academy of Medicine, Jan. 21, 1915.

[1] Mott, F. W.: The Cerebrospinal Fluid, Lancet, London, July 9, 1914.

[2] Goldmann, E.: Experimental Research on the Functions of the Choroid Plexus and Meninges of Brain, Arch. f. klin. Chir., 1913, ci, No. 3.

[3] McIntosh: Proc. Roy. Med. and Chir. Soc., London, 1914, lxxxviii, 320.

[4] Dixon and Halliburton: Jour. Physiol., 1913, xlvii, 215.

At this juncture, although the problem is complicated by so doing, we must acknowledge, at least tentatively, that the cerebrospinal fluid originates in part, in structures other than the choroid plexus. I say acknowledge with regret, advisedly, because this dual source of supply introduces a confusing element. Can the cerebrospinal fluid be in part a true secretory product, and in part an effusion or an infiltrate? Truly that fluid which is derived from the secretory cells of the choroid gland cannot be the same biologic product as that which is the product of brain metabolism, reaching the subarachnoid space through the perivascular system. No one seems to have considered or investigated this problem, which to my mind can only be explained by admitting that the cerebrospinal fluid is composed of two constituents, *differing chemically* and physiologically. We have approached this problem from the laboratory point of view and we are attempting to eliminate the choroid plexus altogether, so that a differentiation between these fluids of dual origin may be possible.

FUNCTION

It may, at first glance, seem as though a discussion of the function of cerebrospinal fluid was a matter of only academic interest, but at least our review would be incomplete, did we not consider it. Chemically considered, the cerebrospinal fluid has no analogy in human physiology; it is analogous neither to lymph nor to the contents of the various serous cavities. What is this unique fluid? Has it no other function than mechanically, as a water bed, to protect the brain and cord against shock and injury, or to support the arteries and, as a water cuff, to maintain a uniform pressure? Is it only to preserve the delicate balance of intracranial pressure—a delicate, self-adjusting mechanism equalizing and distributing pressure throughout the entire intracranial and intraspinal cavities, during such varying conditions as cardiac systole and diastole, inspiration and expiration, in health and disease? The cerebrospinal fluid serves a compensatory purpose in cases of atrophy or shrinking of the brain, as in cases of epilepsy or in congenital defects, filling up the dead spaces and thus surrounding the brain, its arterial and venous channels, with a degree of pressure necessary to maintain the proper balance. No doubt these purely physical activities constitute part of the function of the cerebrospinal fluid, but there must be other functions, of even greater importance.

A very interesting hypothesis has been advanced by Kafka[9] and Goldmann[2] that the cerebrospinal fluid together with the choroid plexus may protect the nervous system against infection. By withholding certain harmful materials, and by creating ferments, the nervous system is thus protected. To show the effect of the choroid plexus as a barrier, we injected 1 c.c. of a 1 per cent. solution of trypan blue into the jugular vein of a rabbit, and though the plexus cells were stained, there was no disturbance of the nervous system. On the other hand, the injection of 2 c.c. of a 1 per cent. solution into the subarachnoid space was fatal in twelve hours.

Inasmuch as it has been shown that there is in the nervous system a canalicular system composed of the perivascular lymphatics which are continuous on the one hand with the pericellular or perineuronal spaces, and, on the other, with the subarachnoid space, according to the anatomic studies of Key and Retzius and others, the staining experiments of Quincke and Jacob, Lewandowsky, Bruno, Goldmann and others, and the microscopic studies of Mott and Hill, it seems but natural to suppose that the cerebrospinal fluid, in its passage through the subarachnoid space and along the perivascular and pericellular spaces, should be the medium of exchange between the capillaries and nerve cells. For example, it has been suggested (Mott) that the cerebrospinal fluid gives up water and carbon dioxid to the blood in exchange for oxygen and sugar. As a matter of fact, large quantities of carbon dioxid have been found in the cerebrospinal fluid and by some[4] the excess of carbon dioxid is believed to act as a cerebral lymphagogue. Kopetzky, in his studies of the cerebrospinal fluid in relation to meningitis, found it contained toxic material, the result of disordered metabolism of bacterial action and fermentation.

Furthermore, the cerebrospinal fluid may be the medium of distributing the active principle of the pituitary to the tissues of the central nervous system. At least this active principle has been found[10] in the cerebrospinal fluid, and if the pituitary body and its secretions are as essential to metabolism as we are now inclined to believe, this function of the cerebrospinal fluid as a carrier of the active hypophysial prinicples, becomes one of first rank.

Although differing in its constituency from lymph, the cerebrospinal fluid performs functions that may be analogous. The choroid plexus in its activity as a filter, has its prototype in the lymph node; the function of lymph is to provide the tissues with materials they require, and to carry away those which have served their purpose. Thus, of cerebrospinal fluid it may be said that it brings oxygen and glycogen to the tissues and carries away carbon dioxid and the products of brain metabolism, normal and pathologic.

PRESSURE

In my daily rounds, I find myself frequently making observations of the pressure of the cerebrospinal fluid, and as a consequence, I have a mass of data and figures, which I must confess have not, as yet, been fully digested. This feature of the cerebrospinal fluid has been the subject of elaborate theoretic studies in the lower animals, chiefly with reference to the conditions which affect pressure; but many of these have little if any practical bearing. I have already published the sults of my own observations on the influence of respiratory movements and of the effect of disturbance of the arterial and venous circulation. What interpretation should be placed on variations in pressure and what significance should be attached to a substantial increase in the cerebrospinal pressure is, however, a matter of practical moment. Personally, I attach a good deal of importance to high cerebrospinal pressure, both in matters of diagnosis and in plan of treatment. Only the other day, a physician consulted me about his patient, perplexed as to whether he was dealing with a purely functional or an organic lesion. There were reasons, perhaps, for taking both points of view, but, on measuring the cerebrospinal pressure, when the fluid was being withdrawn for a Wassermann test, I found it 60 mm. Hg. This to my mind turned the balance at once in favor of an organic lesion.

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[5] Weed, L. H.: *Studies on Cerebrospinal Fluid*, Jour. Med. Research, September, 1914.

[6] Plaut, Rehm and Schottmüller: Leitfaden zur Untersuchung der Zerebrospinal Flüssigkeit, Jena, 1913.

[7] Hauptmann: Neue Deutsch. Chir., 1914, xi, 435.

Dandy, Walter E., and Blackfan, Kenneth D.: Internal Hydro- lus, Am. Jour. Dis. Child., December, 1914, p. 406.

[9] Kafka: Ztschr. f. d. Neurol. u. Psychiat., 1913, xv, 462.

[10] Cushing and Goetsch: Jour. Physiol., 1910-1911, xxvii.

Considerable difficulty confronts us, however, in any attempt to formulate standards or gages or to make comparative studies, because the so-called normal varies so with different observers. I would recommend that the clinicians of this country adopt a standard instrument and that certain regulations be formulated under which observations should be made. To show the disparity of various observers, I quote a few authorities: Adamkiewicz, 80-100 mm. water; Key and Retzius, 160-200; Quincke, 40-60; Kronig, 125-150, etc., etc.[11] In other words, there is a variation *in minimo* of from 40 to 160 mm. of water, and *in maximo* from 60 to 200 mm. of water under normal conditions. While the majority of observers measure in units of water pressure, I have found a small mercury manometer the most convenient and for all practical purposes quite as sensitive to slight variations. Accompanying the manometer is a special lumbar puncture needle, with a Y-shaped attachment so that no fluid can escape until the first reading is made. If this or another equally efficient instrument were accepted as standard, and all readings made with it under standardized conditions, we would soon be able to assemble an array of statistics that would enable us to valuate and interpret the readings of cerebrospinal pressure.

SECRETION

At first thought it seems commonplace and elementary to call attention to the fact that in every disease in which there is a departure from the normal in quantity of cerebrospinal fluid, it is in the direction of increase and not decrease. In the treatment of all intracranial lesions, whether it be hydrocephalus, epilepsy, meningitis, tumors or what not, the excessive accumulation of cerebrospinal fluid has to be reckoned with, and the problem is ever before us: What are the factors which so disturb the balance between secretion and absorption as to be accompanied by a superabundance of fluid? Can one or the other be controlled? To answer these inquiries, I must take you for a while into the field of research. It seemed to me that the logical way to approach this problem was to attack it at its source, to ascertain whether there were any substances, either chemical or glandular which would influence the rate of secretion of cerebrospinal fluid by the choroid plexus. My assistant, Dr. Peet, and I spent the greater part of a year on this problem alone, and our observations covered all of the glandular extracts, spleen, kidney, pancreas, testes, ovary, liver and adrenal, as well as such substances as urine, bile, cerebrospinal fluid, chloroform, ether, amyl nitrate, magnesium sulphate, and physiologic salt solution.[12] I approached the problem from the point of view that in the choroid we were dealing with a secretory gland, the activity of which might be influenced just as it has been found possible to influence the function of the thyroid gland.

Before we had collected many tracings, it became evident to us that the results were more or less uniform in that, whenever the rate of flow was disturbed it was always *accelerated,* not *diminished,* and, furthermore, that coincident with the increased flow there was a fall of blood pressure. The greater the fall of pressure, the more rapid the flow. Just as soon as the blood pressure returned to normal, the flow would begin to slow down. It will suffice here to mention the general results, which, although varying in degree, were common alike to the injection of extracts of spleen, kidney, pancreas and liver. This apparent increase in the quantity of cerebrospinal fluid coincident with the fall of blood pressure, we interpreted as due to the sudden dilatation of the cerebral sinuses forcing out fluid which had accumulated in the ventricles and subarachnoid space, and not to any stimulating action of the extracts on the choroid glands.

Thus far the results may be said to have been negative; but the next series of observations revealed the fact that brain extract caused an actual increase in the cerebrospinal fluid, wholly independent of the amount of fall in blood pressure. In other words, a substance had been found which of itself had some specific action on the choroid gland. Dixon and Halliburton[13] had come not only to the same conclusions regarding brain extract, but found that the increased output was more striking following the injection of the choroid plexus, and on their findings they promulgated the theory of a specific hormone—a choroid hormone—a chemical substance, the product of brain metabolism, stimulating the secreting epithelium of the choroid plexus and increasing its output.

Even though we had been able to find only substances which resulted in hyperactivity and none in hypoactivity, nevertheless a definite physiologic fact had been established, and we were sufficiently encouraged to continue the research in the hope of finding some substance having a specific action on the choroid gland, but in the nature of *inhibition.* To make a long story short, we discovered in thyroid extract a substance which of itself had a specific inhibitory effect on the action of the choroid plexus. Wholly irrespective of any other extraneous factors such as blood pressure, respiration, etc., when injected in sufficient quantities, thyroid in the form of fresh human, or fresh dog thyroid and the commercial desiccated beef thyroid, alike caused a temporary fall in blood pressure with the usual transitory increase, but following that a *prolonged* period in which the flow of cerebrospinal fluid was reduced to one-third that of normal. We have pursued this line of investigation further in search for the constituent of thyroid tissue that is the active agent. Alcoholic extracts of thyroid gland are practically inert.

Quite recently, we have been working with diiodotyrosin, a synthetic product identical with that found in the thyroid. While identical in some respects with thyroid tissue, it has not some of the properties of thyroid tissue, such as those which cause myxedema and exophthalmic goiter. This synthetic substance which I obtained through the courtesy of Dr. T. B. Jackson of Yale University had the same retarding influence on the output of cerebrospinal fluid, although not to so marked a degree as thyroid tissue itself.

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[11] Quoted from Mestrezat, Le liquide cephalo-rachidien normal et pathologique, Paris, A. Maline, 1912, p. 85.

[12] The laboratory experiments are repeated in full in a paper by Dr. M. M. Peet and myself, Am. Jour. Physiol., xxxv, No. 3, 1914.

[13] Dixon and Halliburton: Jour. Physiol., Nov. 7, 1913.

Finally with the substances which act as cerebral lymphagogues, must be included (as brought out by Dixon and Halliburton) those which cause a deficient oxygenation with the resulting accumulation of carbon dioxid in the blood. In this group are pilocarpin, which interferes with respiration, amyl nitrate, anesthetics and narcotics.

Reference may be made here to my observations both in the laboratory and the clinic of the effect of the ligation of the common carotid arteries on the secretory rate. It had been suggested that the output of cerebrospinal fluid might be controlled by ligation of the common carotid arteries and this operation has even been recommended as a treatment of hydrocephalus. We found, however, both in the clinic and in the laboratory, that the rate of secretion was practically uninfluenced by ligation and assert that the operation is without justification, and therefore that it should not be endorsed. In the case of an inoperable brain tumor with distended ventricles, it was possible after the operation to introduce a cannula through the scalp directly into the ventricles. The latter were tapped on several occasions, the cerebrospinal pressure recorded before and after the withdrawal of measured amounts of fluid and the time required for the ventricles to refill was noted. These observations were repeated both before and after ligation, first of one then of both common carotid arteries. In both instances the fluid reaccumulated at the same rate and with the same degree of pressure.

ABSORPTION

The companion problem to that of secretion is the problem of absorption, and on this much light has been shed by recent investigations. We may accept without question the general statement that the major portion of the cerebrospinal fluid leaves the subarachnoid space via the venous channels rather than via the lymphatics. I need not retail the staining experiments which have proved to us the truth of this. It is true that fluid does escape by the nerve sheaths and into the lymphatic system, but only very slowly and in comparatively small quantities.

That the system of absorption was a very elastic one, capable of meeting demands much beyond those of normal conditions, was impressed on me years ago, when, in studying the problem of intracranial tension, I allowed by gravity, salt solution to flow into the subarachnoid space. To my amazement, amounts varying from 500 to 1,000 c.c. of saline solution would be absorbed within an hour or two from the subarachnoid space of a dog. Perhaps the physiologic properties of salt solution may make it a more favorable solution for absorption.

In altogether another connection, I compared the absorption of salt solution with that of cerebrospinal fluid from the subcutaneous tissues. The inefficiency of many attempts at drainage of the subarachnoid space subcutaneously had always been difficult of interpretation. I knew that within the cranial cavity drainage via the lymphatics was a negligible quantity, but I could not explain the accumulation of fluid in the subcutaneous tissues with free communication with the lymphatics. My simple experiment consisted in injecting equal quantities of cerebrospinal fluid and salt solution at corresponding points over the rectus muscle, to either side of the median line intracutaneously, producing a wheal-like swelling, the size of a penny, readily seen and felt. In every instance the wheals would disappear within a few minutes and the wheals of cerebrospinal fluid just as rapidly, if not more so, than that of normal saline solution. The experiment, if it can be dignified by that term, was both positive and negative in its results. It demonstrated the readiness with which cerebrospinal fluid is taken up by the superficial lymphatics, but did not explain, as I had hoped, the frequent failures after subcutaneous drainage, as in cases of hydrocephalus.

A problem in absorption, which more than any other attracted my attention, was the rapidity of elimination of phenolsulphonephthalein after its injection into the ventricles. Within two hours of the injection, we recovered from the urine *60 per cent. of the drug.* At this rate there should be a complete replacement, if we can assume that a proportional quantity of cerebrospinal fluid is absorbed in the same time, of the total amount of cerebrospinal fluid every three or four hours, at the rate of a *replacement* of one-third the total amount every hour. This, to my mind, emphasizes the importance of the cerebrospinal fluid as a medium for the elimination of waste products. If, under normal conditions, there are from 60 to 120 c.c. of cerebrospinal fluid, and if this amount is replaced every three or four hours, the entire amount secreted for the twenty-four hours should total from 360 to 720 c.c.

The debatable questions in the physiology of absorption are as to the channels of escape and as to whether absorption is restricted to a certain area or whether it is a diffuse process limited only by the extent of the subarachnoid space. On the injection of phenolsulphonephthalein into an artificially blocked ventricle, we found that practically no absorption took place; after two hours there was only the slightest trace and this not constant, compared with 60 per cent. absorption in two hours when injected into the unobstructed ventricle. We have thus eliminated the ventricle, which in function is comparable to the urinary bladder, serving merely as a reservoir.

Is absorption a process of diffusion directly into the capillary network of the subarachnoid space? Is it a process of filtration via the arachnoidal villi, the precursors of the pacchionian bodies, into the great sinuses? If we accept the theory that the cerebrospinal fluid is the ambient medium of exchange between blood and nerve cells—a priori, a very plausible one—we would be prepared to accept the theory of capillary absorption. It would be idle to ramble into a discussion as to the relative merits of either theory. I can see in either a matter of no practical moment, for the very patent reason that the theories apply really to normal conditions, that is to say, conditions of normal cerebrospinal and vascular pressure. Just as soon as the cerebrospinal pressure is increased, channels of escape other than those attending normal conditions become available.

This point may be illustrated by the perversion of the lymph circulation under abnormal conditions such as carcinoma. As the lymph circulates in normal conditions, we could readily foretell where to look for lymph node metastasis, but just as soon, in carcinoma, the natural lymph channel is occluded, the lymph circulation and with it cancer cells, may be forced into many devious and anomalous paths.

Whether the process of absorption is confined to certain areas of the subarachnoid space, is diffuse or limited, is to be determined by further investigation. If one may be permitted to express an opinion based largely on that of the clinic, but partly on laboratory observation, I would say very definitely that the amount and rapidity of absorption was in proportion to the total area of subarachnoid space available. You have all observed that with tumors of the posterior fossa there is greater intracranial pressure; this implies a larger quantity of cerebrospinal fluid and this, in turn, delayed absorption. Now in the laboratory we found that, when a column of fluid was introduced into the cisterna magna at a pressure in excess of venous pressure, the midbrain was forced upwards and the isthmus of the tentorium blocked. To prove that the passage of fluid from the posterior to the anterior fossa was blocked, the cortex was inspected through a parietal trephine opening. No fluid was seen. To correlate this clinical and laboratory observation—if absorption takes place from the subarachnoid space throughout, the elimination of the extensive cortical area of both hemispheres reduces the absorptive area to a considerable degree. Is it not possible, then, for a tumor of the posterior fossa to block the passage of cerebrospinal fluid through the tentorium, and, as in the above experiment, interfere seriously with absorption?

Before the problem of absorption can be solved, we must know more of these pathologic factors which retard the process, and which of the various factors may prevail in given conditions. What is the pathologic factor in hydrocephalus? What is it in epilepsy? What is it exactly in brain tumor? These are problems for us to investigate further.

From these cursory observations of the fundamental problems having to do with the origin and circulation of the cerebrospinal fluid, we turn now to considerations of clinical conditions in which the cerebrospinal fluid is an important factor.

In all forms of meningitis it has to be reckoned with, because hypercranial pressure, as caused by acutely distended ventricles, is often the determining factor in fatal cases. Apart from repeated lumbar puncture to relieve tension, there are no measures to be considered other than the use of specific serums when available. I have yet to see a case of tuberculous meningitis of acute type recover when pressure was relieved by decompression. Nor have I seen or heard of any cases of suppurative meningitis which have been cured by drainage of the cisterna magna.

That more obscure form of meningitis, obscure at least as to origin, the so-called serous meningitis or as Reichmann calls it, aseptic meningitis, presents very positive indication for relief of pressure by such operative measures as subtemporal or suboccipital decompression. For illustration I may allude to two cases of my own: in the first, that in a boy with symptoms of extreme tension and impending blindness, I decompressed in the temporal region. He developed a tremendous swelling at the site of the operation, and immediately the distressing symptoms were relieved. The process of resolution extended over a period of months (the etiology always undetermined), until finally, almost a year after the operation, the tension at the site of the cranial opening disappeared, and the boy, apart from defective vision, was restored to health. I cite this case to illustrate the advantages of a temporal decompression over lumbar puncture under such circumstances, but more particularly to call attention to peculiar and striking fluctuations in the degree of tension at the site of the opening in the protracted course of the disease. Without apparent cause and at irregular intervals there would be a return of all the symptoms with signs of extreme tension for periods lasting for from a few days to a week.

In the second case, after a suboccipital decompression, relief was afforded for only a few days. The symptoms and physical signs of hypertension returned and unless from 5 to 10 ounces of fluid were withdrawn daily, the boy was in great agony from headache, pain in the eyes, and pains referred to the epigastrium. I succeeded in this case in supplying a safety valve, as it were, by draining the cavity of the posterior fossa into the right pleural cavity, a method Dr. Peet had found of practical value in the laboratory. This was accomplished with two heavy strands of braided silk (Handley's silk) which were carried subcutaneously from an opening into the cisterna magna at the base of the neck to the angle of the scapula, where after resecting ½ inch of the right rib, the other ends of the silk strands were introduced into the pleural cavity. The operation was devoid of any difficulties and it may prove to have a wider application for the relief of those effusions within the skull, so often the proximate cause of grave cerebral symptoms.

Vomiting, headache and papilledema, as symptoms of brain tumor, are the expression of hypertension within the cranial chamber, but this hypertension is never, perhaps I should say rarely, due to the mere accession to the contents of the cranial chamber, of the tumor itself. On the contrary, it is always, acknowledging exceptions, the result of excess of cerebrospinal fluid distributed throughout the subarachnoid space. Time will not permit of my treating this *in extenso*—I have covered the subject in a recent communication[14]—but only briefly to state a few unquestionable truths. Increased intracranial tension in tumors is the result of a secondary hydrocephalus, whether the tumor be cortical, subcortical or basal, large or small, malignant or benign. Tumors, irrespective of their size, character or seat, may exist *without signs of tension*. Subtentorial growths show signs of increased tension earlier because for patent reasons, they interfere more readily with absorption of cerebrospinal fluid. The excess of fluid may be in the ventricles alone, in the basal cisterns alone, or distributed throughout the subarachnoid space. The excess of cerebrospinal fluid in brain tumors is not, I believe, to be explained on a physical basis, that is, only as a problem of absorption. I find evidences in brain tumors of hypersecretion also, perhaps an expression of disturbed brain metabolism. Palliative treatment in brain tumors resolves itself largely into the problem of dealing with the associated hydrocephalus, and, therefore, accompanying decompression or preceding it, puncture of the corpus callosum should always be thought of.

Hydrocephalus has long been the *bête noir* of the neurologist and the surgeon. Four centuries before Christ, Hippocrates tapped the ventricles in the treatment of hydrocephalus, and for twenty-three and almost twenty-four centuries, we stood pretty much where Hippocrates did so far as therapeutic accomplishment was concerned. Of late, however, b experiment and observation, certain definite contributions have been made that cannot but clear up some of the difficulties in diagnosis and treatment. In our laboratory we have been able to produce an artificial hydrocephalus by means of which it has now become possible to differentiate types of hydrocephalus; for example, an obstructive or a non-obstructive type. Of a given amount of phenolsulphonephthalein injected into the ventricles, 60 per cent. should be recovered in the urine in two hours. This test becomes one of great value not only as a guide to pathogenesis, but also to treatment. For example, the other day I was consulted as to the proper treatment in a case of hydrocephalus. The test was applied. The elimination of phenolsulphonephthalein in two hours, was 2 per cent. instead of 60 per cent. The chief pathogenic factor in this case was delayed absorption. The treatment, therefore, becomes a problem of drainage.

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[14] Frazier, C. H.: The Cerebrospinal Fluid and Its Relation to Brai Tumors, New York Med. Jour. June 27, 1914.

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Of the many methods of draining in the non-obstructive cases, and the methods increase in number faster than they do in effectiveness, I speak hopefully of the one I have proposed, that of draining the basal cisterns into the pleural cavity.

In this cursory review, I have touched only on what might be said to be the issues of the day in the physiology of the cerebrospinal fluid. The subject is capable of expansion and development in many directions, and what we know to-day may be but a fragment of the truths yet to be revealed. Obscure as many phases still are, the facts we have in recent years acquired have a very real and practical bearing on many different clinical problems. May we not then forecast a greater mastery over many lesions of the nervous system, hitherto baffling and obscure?

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Biology and the Social Sciences.—I am led to the suggestion of a more intimate relation between biologic and social sciences because great discoveries which give a new direction to currents of thought and research are not, as a rule, gained by the accumulation of vast quantities of figures and statistics. These are apt to stifle and asphyxiate and they usually follow rather than precede discovery. The great discoveries are due to the eruption of genius into a closely related field, and to transfer of the precious knowledge there found to his own domain. It is not so very long ago when medicine paid but little attention and less respect to the unusually rich field of animal life as a source of information. To-day, every department of medicine fills its available working spaces with animals which are subject of profound study. The results have revolutionized human dicine within a generation.—Theobald Smith: *Bos* *and Surg. Jour.*

EXPERIMENTS RELATING TO THE VIRUS OF VERRUGA PERUVIANA

FOURTH REPORT *

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Professor of Tropical Medicine
AND
ERNEST E. TYZZER, M.D.
Assistant Professor of Pathology
BOSTON

TRANSMISSION TO ANIMALS AND CULTIVATION OF THE VIRUS OF VERRUGA

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In performing these inoculation experiments in the manner in which we did, several objects were in view: first, to determine if the disease was directly inoculable; second, to determine if a visible micro-organism was present in the lesions; third, to determine if a spirochete was present, and fourth, to differentiate the disease from frambesia and syphilis. In this article, therefore, all of these points will be discussed more or less widely.

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On intratesticular inoculation of the virus into rabbits or dogs, a more or less characteristic lesion is sometimes produced after an incubation period varying from ten to twenty-two days. The lesion usually measures several millimeters in diameter, and is sharply circumscribed from the surrounding tissue. In the rabbit's testicle it suggests in its appearance not a lesion which has resulted from an acute inflammatory process, but rather one which has arisen from a rather low grade of inflammation. By repeated inoculations of this character, however, the virus becomes gradually attenuated, and finally inoculations of this nature fail. In only a certain percentage of the inoculated rabbits does a lesion develop. This fact suggests that rabbits are not very susceptible to the virus.

In the earlier literature on the subject of verruga peruviana and Oroya fever, it has been repeatedly stated that the lower animals were susceptible to the disease, and that the infection had been observed in animals, and particularly in dogs, cats, mules and poultry. Scheube and Manson refer to these statements. Manson points out in this connection that if the lower animals were susceptible to the disease, it is curious that Carrion chose to experiment on himself. Scheube calls attention to the fact that animals have also been reported to suffer from Oroya fever. Barton claimed the production of a verruga-like eruption on the skin of dogs following the inoculation of an organism said to have been cultivated from cases of Carrion's fever, and afterward shown to be a paracolon bacillus. As a matter of fact, there was no demonstration that the virus of verruga could be transmitted to animals until experiments with monkeys were undertaken. We have already referred to our work on this subject.

Jadassohn and Seiffert[1] in one case of verruga peruviana, and Mayer, Rocha-Lima and Werner[2] in another case, both of which were studied in Europe, also succeeded in transmitting the virus to monkeys through several generations. Cole[3] showed from a study of Jadassohn's case, and the material from the animal lesions, that the histologic structure of the nodules produced in the monkeys was also similar to that of the human lesions, an observation which we have been able to confirm. In Lima more recently Dr. Ribeyro also transmitted the virus of verruga to a monkey in which we observed the lesions develop. So far as we know up to the time of writing, no published report of this experiment has yet been made. These experiments and our own on monkeys, dogs and rabbits, already described, are the only ones that have demonstrated that the virus of verruga is transmissible to the lower animals. We did not observe any cases of natural infection of the disease in dogs, cats, donkeys or poultry, and do not believe that the disease occurs naturally in these animals. In fact, the monkey is the really only satisfactory animal for inoculation purposes in this disease.

In the transmission of the virus from man to animals it is noticeable that in monkeys, and as has been mentioned particularly in the intratesticular inoculation of the rabbit, the inoculation often fails, and no lesion results. It would appear that the virus is only transmissible during a certain stage of the disease even in man, and that unless it is obtained from the lesion of the human case during that stage, it is either innocuous for animals or its virulence is greatly reduced. Also, the susceptibility of the animal to the infection obviously must play a rôle in regard to the percentage of animals in which the inoculation succeeds and a definite lesion results. In monkeys the percentage of successful inoculations is much higher than in rabbits, and the virus, while it becomes attenuated by successive passages through these animals, does not become nearly so quickly attenuated in this manner as it does by successive passages through the rabbit's testicle. When once the virus has been successfully transmitted from the human lesion to the monkey, however, it may be sometimes carried through many successive passages in these animals, as has been already emphasized.

CULTIVATION AND FILTERABILITY OF THE VIRUS OF VERRUGA

Many experiments have been undertaken in the cultivation of the virus of verruga from material obtained from human lesions and from those produced in the rabbit's testicles. The results obtained in these experiments show that even in those cultures which suggested from their appearance the possibility of a growth, no definite micro-organism could be demonstrated by microscopic examination or by subculture, and on inoculation of these cultures into the rabbit's testicle, no lesions were produced. While the results alone of the inoculation experiments into animals of this nature do not preclude a cultivation of the virus, since by this method of inoculation only a small proportion of rabbits may be expected to develop lesions even when the fresh virus is employed, nevertheless, the results of these experiments do not give any support to the idea of a successful cultivation of the virus. Numerous attempts have also been made to cultivate the virus in vitro from the verruga lesions produced in monkeys by its inoculation.

These experiments and those performed in relation to the cultivation of the virus from the human and rabbit lesions have usually resulted in failure. Various modifications of the methods described by Noguchi and Murphy for cultivation have been employed. Great difficulty has been experienced in obtaining the material from monkeys free from bacteria. The monkeys almost invariably scratch and infect secondarily the lesions. It is not deemed advisable to consider in detail all of the experiments which have resulted in complete failure of cultivation of the virus from the lesions produced in these animals. However, the results will be briefly referred to which were observed in a series of cultures made in ascitic fluid containing rabbit's testicle to which had been added exudates produced by injections of aleuronat experiment and observation, certain definite contributions have been made that cannot but clear up some of the difficulties in diagnosis and treatment. In our laboratory we have been able to produce an artificial hydrocephalus by means of which it has now become possible to differentiate types of hydrocephalus; for example, an obstructive or a non-obstructive type. Of a given amount of phenolsulphonephthalein injected into the ventricles, 60 per cent. should be recovered in the urine in two hours. This test becomes one of great value not only as a guide to pathogenesis, but also to treatment. For example, the other day I was consulted as to the proper treatment in a case of hydrocephalus. The test was applied. The elimination of phenolsulphonephthalein in two hours, was 2 per cent. instead of 60 per cent. The chief pathogenic factor in this case was delayed absorption. The treatment, therefore, becomes a problem of drainage.

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[1] Jadassohn and Seiffert: Ztschr. f. Hyg. u. Infectionskrankh., 1910, lxvi, 247.

[2] Mayer, Rocha-Lima, and Werner: München. med. Wchnschr., 1913, No. 14.

[3] Cole: Jour. Cutan Dis., 1913, xxxi, 384.

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TRANSMISSION OF THE VIRUS OF VERRUGA TO ANIMALS

It has been found that the monkey is the most satisfactory animal for inoculation purposes. If the skin over the eye is scarified and a small portion of a verruga nodule rubbed into the abrasions, after an incubation period usually of from ten to twenty days, small papules appear which gradually enlarge and later assume the typical picture of the verruga nodules as seen in human beings. The nodules thus produced also have a similar histologic structure to those observed in man, a fact that will be referred to again. We have transmitted this virus from animal to animal through twelve successive series of monkeys since our departure from South America over a year ago. In twenty-five monkeys typical lesions have been produced in this manner.

When the monkey is inoculated with the virus either directly from man or from another monkey, only a localized lesion develops and no generalized eruption occurs. When this animal is inoculated with smallpox virus, also only a modified form of the eruption is produced. The monkey is not apparently as susceptible to either the virus of verruga or that of smallpox as is man. The virus of verruga also calls forth no appreciable febrile reaction in the monkey inoculated with it, and none of the monkeys died from the inoculation with this virus. The lesion in the monkey as a rule gradually begins to fade away four or five weeks from the time of the inoculation. The virus also may be sometimes transmitted to rabbits and to dogs. In the dog the subcutaneous inoculation occasionally produces a lesion which is much more vascular than the one produced in the rabbit's testicle.

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CULTIVATION AND FILTERABILITY OF THE VIRUS OF VERRUGA

Many experiments have been undertaken in the cultivation of the virus of verruga from material obtained from human lesions and from those produced in the rabbit's testicles. The results obtained in these experiments show that even in those cultures which suggested from their appearance the possibility of a growth, no definite micro-organism could be demonstrated by microscopic examination or by subculture, and on inoculation of these cultures into the rabbit's testicle, no lesions were produced. While the results alone of the inoculation experiments into animals of this nature do not preclude a cultivation of the virus, since by this method of inoculation only a small proportion of rabbits may be expected to develop lesions even when the fresh virus is employed, nevertheless, the results of these experiments do not give any support to the idea of a successful cultivation of the virus. Numerous attempts have also been made to cultivate the virus in vitro from the verruga lesions produced in monkeys by its inoculation.

These experiments and those performed in relation to the cultivation of the virus from the human and rabbit lesions have usually resulted in failure. Various modifications of the methods described by Noguchi and Murphy for cultivation have been employed. Great difficulty has been experienced in obtaining the material from monkeys free from bacteria. The monkeys almost invariably scratch and infect secondarily the lesions. It is not deemed advisable to consider in detail all of the experiments which have resulted in complete failure of cultivation of the virus from the lesions produced in these animals. However, the results will be briefly referred to which were observed in a series of cultures made in ascitic fluid containing rabbit's testicle to which had been added exudates produced by injections of aleuronat containing leukocytes and small fragments of verruga nodules.

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[1] Jadassohn and Seiffert: Ztschr. f. Hyg. u. Infectionskrankh., 1910, lxvi, 247.

[2] Mayer, Rocha-Lima, and Werner: München. med. Wchnschr., 1913, No. 14.

[3] Cole: Jour. Cutan. Dis., 1913, xxxi, 384.

In several instances such cultures showed certain differences from the control ones, notably in a cloudiness of the media, and in the formation of a fine granular precipitate along the sides and bottom of the tube. This precipitate perhaps resulted from disintegration of the tissues in the culture by the growth of the virus. Apparently it did not constitute itself a living organism, as these cultures revealed no bacteria or other visible micro-organism, and subcultures on agar gave no apparent growth. In the case of one monkey, inoculated with such a culture which had been incubated for sixteen days at 37 C. (98.6 F.), a small group of reddish papules appeared in a row on each brow after an incubation period of twenty-one days. These papules, however, never developed into as extensive lesions as almost invariably happens when the fresh virus is used, and they disappeared in a shorter time. Thus it appears that while the virus was still alive in the culture medium, it had evidently become more or less attenuated. Other attempts to infect monkeys with cultures have failed. Experiments in cultivation were continued, but with no further success. In the successive passage of the virus through monkeys, it has become increasingly difficult to obtain sufficient satisfactory material from which to prepare the cultures. The most satisfactory material for work in cultivation of the virus can be secured directly only from the human cases. The cultivation of the virus of verruga, then, seems to be to-day in a somewhat similar position to that of the virus of small-pox.

FILTERABLE QUALITIES OF THE VIRUS

Experiments were also performed to demonstrate the filterable qualities of the virus. Rabbits, inoculated with the diluted filtrates of suspensions made by grinding the human lesions in saline solution, developed no lesions. These experiments are not conclusive, however, since, as has been emphasized, only a portion of the rabbits inoculated with the virus itself by the intratesticular method develop lesions. No monkeys were available for filtration experiments, while human material was available. Although we had been informed that monkeys were plentiful in Peru, we had the greatest difficulty in obtaining them on the western coast of South America, and it was necessary to import them via Panama. Subsequently, however, experiments were performed relating to the filterable qualities of the virus with material obtained from the lesions produced in monkeys by inoculation of the virus after numerous successive passages of it through these animals. In the experiments in which portions of the verruga nodules from monkeys were finely ground, suspended in water or saline solution, and the resulting mixture passed through Berkefeld filters (No. 2), the filtrates failed to produce lesions in monkeys, and monkeys inoculated with such filtrates were not rendered immune to subsequent infection with the unfiltered virus. Either the virus was present in too small amount in the filtrates, or was in too attenuated a condition to give rise to the production of lesions in an animal so relatively insusceptible to the infection as is the monkey, or else it had failed to pass through the pores of the filter. Nevertheless, we have been unable to detect by microscopic examination either in numerous fresh preparations, often examined with the dark field microscope, or in stained preparations made from the verruga lesions, or in cultures made from them, or in sections from the tissues, any definite visible micro-organism. It seems not unlikely that the virus of verruga will ultimately be shown to be a filterable one.

As is well known, the success in filtering a virus or organism depends not only on the form and dimensions of it, and the texture and thickness of the filter used, but on the pressure employed, the duration of the filtration, and the composition of the liquid in which the virus or organism is suspended. The results obtained in animals inoculated with the filtrates of some of the "filterable viruses" are frequently not constant, and before it can be definitely asserted that a virus is non-filterable or filterable, very extensive experimentation with a large amount of material is sometimes necessary.

For many years the virus of small-pox was regarded as non-filterable, and in many experiments made in connection with the filtration of this virus, the filtrates of it often fail to produce lesions in monkeys. Sims Woodhead[4] has recently again called attention to this fact, and has mentioned that during an epidemic of small-pox he attempted to obtain vaccine by filtration, but found that not a trace of active vaccine was found in the filtrate after the process was completed, whether the dilution was high or low. Further experiments in relation to the question of the filterability of the virus of verruga should be performed with perfectly fresh material obtained from the human lesions, and the inoculation of the filtrates should be made into human beings or into monkeys to demonstrate whether the virus has passed through the pores of the filter in sufficient amount to produce lesions. Mayer, Rocha-Lima and Werner[2] have performed a single experiment regarding the filterability of the verruga virus. In this instance the filtrate from a Berkefeld candle of a suspension of four ground papules removed from their case was inoculated over the eyes of a monkey. The experiment resulted negatively, and no lesion resulted. As the virus becomes altered in its repeated passage through monkeys, the results of the experiments regarding its non-filterable qualities which have been performed by us on monkeys should not be considered conclusive.

In connection with the consideration of the virus of verruga peruviana, the important researches of Rous[5] relating to the nature of the filterable agent causing sarcoma of the fowl are of great interest.

SIMILARITY BETWEEN THE VIRUS OF VERRUGA AND OF SMALL-POX

We have called attention to the fact that when monkeys are inoculated with the virus of verruga, no generalized eruption occurs on the skin, but only a localized lesion. The small-pox virus also calls forth only a modified eruption in these animals. Neither the virus of small-pox nor that of verruga, as we have shown, has been satisfactorily cultivated in vitro on artificial media. In several other ways the virus of verruga shows some similarity to that of small-pox, but in other ways obviously the two behave very differently. So far no definite visible micro-organism has been discovered in verruga peruviana, although Mayer, Rocha-Lima and Werner,[6] in the study of a single case, reported the presence of bodies resembling Chlamydozoa in the lesions. The cell inclusions observed in variola and vaccinia have also been referred by Prowazek[7] to the Chlamydozoa. Schilling-Torgau[8] places both verruga peruviana and variola in the list of diseases caused by filterable viruses, but he gives no evidence to support the view that the virus of verruga is filterable. Apart from the evidence obtained from our own experiments and the single negative one performed by Mayer, Rocha-Lima and Werner, already referred to in previous papers, no experiments relating to this question apparently have been performed. The filterable properties of the virus of verruga have, however, already been discussed. The virus of verruga is much less stable than that of small-pox, and after the verruga virus from animals has been glycerinized, it is at least sometimes no longer inoculable for monkeys, as we have shown. The two viruses show similarity, however, in the fact that monkeys which have been successfully inoculated with either of them are subsequently usually immune to a second inoculation of the corresponding virus. In every instance in which a monkey has been successfully inoculated with the verruga virus it has subsequently been immune to reinoculation. The verruga virus, on the other hand, produces no lesion when inoculated on the rabbit's cornea, as does the variola virus. The disease produced in man by the small-pox virus is of a more virulent type than that produced by the virus of verruga.

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[4] Woodhead, Sims: Proc. XVII Internat. Cong. Med., London, 1913, Sect. 4, Bacteriology and Immunity, p. 122.

[5] Rous: The Journal A. M. A., 1911, lvi, 198. Rous, Peyton, [illegible] Nature of the Filterable Agent Causing a [illegible]., June 22, 1912, lviii, 1938.

[illegible] and Werner: München. med. Wchnschr., [illegible]d. deutsch. path. Gesellsch., 1913, p. 198.

The clinical appearance and structure of the lesions on the skin are also entirely different, and small-pox is very contagious. The inoculation of man with small-pox virus obtained directly from a human case of small-pox, however, is not usually a dangerous proceeding, and we have shown in one case that the inoculation of a man with verruga virus obtained directly from another human case was accomplished without serious result. After considering these facts, it seems apparent that there is a slight analogy between the two viruses.

A MILK BORNE EPIDEMIC OF TONSILLITIS IN TUBERCULOUS PATIENTS *

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The relation of milk to the epidemiology of certain diseases, such as diphtheria, typhoid fever, scarlet fever, etc., has been quite definitely established. The close association of epidemic sore throat to an infected milk supply, although recognized by English physicians for some years past, did not attract attention in this country until the recent study by Winslow,[1] of the Boston epidemic in 1911. A detailed analysis of 1,043 cases gave strong presumptive evidence that the original source of the epidemic was milk contamination. Winslow arrived at the following conclusions: The milk from a single dairy was the channel of distribution for the epidemic, and although no acute cases among the dairy employees were encountered, a carrier case presumably infected the milk.

Other epidemics of a similar nature have been reported in this country. Capps and Miller[2] have studied in detail the Chicago epidemic of 1911 and 1912. A bacteriologic analysis of the milk in this epidemic was made by Davis,[3] who recovered a streptococcus identical in morphology, in culture, and in pathogenicity, with a culture obtained from a human case of tonsillitis and arthritis. An extensive report of the Baltimore epidemic in 1912 has been made by Frost, Stokes and Hachtel.[4] The same year Cowes[5] reported a second outbreak in Boston. More recently the Cortland epidemic has been investigated by North, White and Avery,[6] who give an excellent historical review of the subject, and offer substantial evidence in confirmation of the previous assumption that the cause of the infection was a streptococcus, discharged from the inflamed udder of the cow into the milk. In all instances the source of infection was traceable to cases of mastitis among the herd or to illness of one of the dairy attendants. The present series of cases is apparently the first recorded instance of an epidemic of tonsillitis in a population almost exclusively tuberculous and due presumably to milk contamination. Of further interest is the type of organism isolated and the mild character that the epidemic assumed in contrast to those previously described.

The present epidemic occurred at the New York State Hospital for Incipient Tuberculosis at Ray Brook, N. Y. On the evening of Jan. 23, 1914, three patients were reported suffering from tonsillitis. Three days later the total had risen to forty out of a population of approximately four hundred. Inquiry revealed that the epidemic was sharply localized. No cases were present in the immediate neighborhood and the surrounding towns reported that no notable increase above the usual number of cases had been observed. The epidemic showed no predilection for any one division of the sanatorium, the distribution of cases being fairly uniform. There was also no evidence to show that the infection originated in the sanatorium, as no case of tonsillitis had occurred in the institution during the previous two months. The possibility that the infection had been introduced from without through the medium of a visitor to the sanatorium naturally could not be excluded. Inquiries were made to determine this point but with negative result. The data given above connected with the rapid spread of the infection, pointed to some unusual source of origin and it was tentatively assumed that one of the more universal vehicles, water or milk, was at fault. The water was examined and found to be of the usual standard quality.

The milk supply for the sanatorium is derived from two separate farms, approximately six miles apart and under one management. The dairies for convenience may be designated as "A" and "B." The entire milk supply of the two farms is consumed by the sanatorium. Farm *A* supplies two-thirds of the milk. The barn is a modern structure and in good order. The usual reluctance to answer questions was encountered, but an inspection of the herd showed the animals in good condition and with no obvious udder trouble. The attendants appeared healthy and denied recent illness. On Farm *B* the barns are temporary structures, and as might be expected, conditions were not comparable to those of Farm *A*. One of the milkers on this farm, a lad of 14, stated that during the previous week he had been in bed for three days with a sore throat, but was not very sick at the time, and had resumed milking almost immediately after getting out of bed. His return to work occurred four days previous to the inspection of the farm. The lad appeared healthy, the throat showed no appearance of recent inflammation and the cervical and submaxillary glands were not enlarged. The boy's mother stated that another of her children had caught the disease from the boy, and was at present confined to bed. A visit to this child revealed a clinical picture strikingly like the cases at the sanatorium. The tonsils were engorged, the surface covered by a discrete exudate; the pillars and uvula were injected and there was decided enlargement of the glands at the angle of the jaw; the temperature was 102.3 F.; the pulse 112. A culture from the throat was obtained, treatment was prescribed and an antiseptic gargle prepared for the family and employees. As both the children attended the local district school, it was thought that some light might be thrown on the original source of the infection by an inspection of the records of those absent on account of illness. The number of absentees was found to be no larger than previous years. There appeared on the record, however, "absence due to sore throat" for one of the pupils, which antedated by ten days the illness of the boy on the farm. Inquiries in the neighborhood and replies from the two local physicians gave no indication of undue prevalence of tonsillitis in the immediate neighborhood of the farm.

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[7] Prowazek: Handbuch der Pathogenen Protozoen, Leipzig, 1912, i, 119.

[8] Schilling-Torgau: Mense, Handbuch der Tropenkrankheiten. Leipzig, 1914, Ed. 2, ii, 110.

* Read before the Academy of Medicine at Toronto, Jan. 12, 1915.

[1] Winslow: Jour. Infect. Dis., 1912, x, 73.

[2] Capps, J. A., and Miller, J. L.: An Epidemic of Sore Throat Due to Milk, The Journal A. M. A., April 13, 1911, p. 1111; The Chicago Epidemic of Streptococcus Sore Throat and Its Relation to the Milk Supply, ibid., June 15, 1911, p. 1848.

[3] Davis, David J.: A Bacteriologic Study of Streptococci in Milk in Relation to Epidemic Sore Throat, The Journal A. M. A., June 15, 1911, p. 1852.

[4] Frost, Stokes and Hachtel: Pub. Health Report 47, U. S. P. H. S., 1912, xxvii, 1889.

[5] Cowes: Am. Jour. Pub. Health, 1913, ii, 419.

[6] North, White and Avery: Jour. Infect. Dis., 1914, i, 124.

TABLE SHOWING BACTERIOLOGIC STUDY OF CASES OF EPIDEMIC SORE THROAT

Case No.	Hemolysis	Salicin	Raffinose	Mannite	Inulin	Dextrin	Dextrose	Saccharose	Litmus Milk	Bile	Remarks
Group A—											
1.........	+	+	—	—	—	—	+	+	+	—	Rabbit, 750 gm., died. Multiple arthritis and empyema. 1 c.c. eighteen-hour broth culture.
2b........	+	+	—	—	—	—	+	+	+	—	
3a........	+	+	—	—	—	—	+	+	+	—	
4.........	+	+	—	—	—	—	+	+	+	—	
5a........	+	+	—	—	—	—	+	+	+	—	
15.........	+	+	—	—	—	—	+	+	+	—	
16.........	+	+	—	—	—	—	+	+	+	—	
17.........	+	+	—	—	—	—	+	+	+	—	
18*........	+	+	—	—	—	—	+	+	+	—	Rabbit, 700 gm., died. General septicemia. 1 c.c. eighteen-hour broth culture.
19.........	+	+	—	—	—	—	+	+	+	—	
23.........	+	+	—	—	—	—	+	+	+	—	
24a........	+	+	—	—	—	—	+	+	+	—	Blood culture negative.
24b........	+	+	—	—	—	—	+	+	+	—	
6b........	+	+	—	—	—	+	+	+	+	—	
12a........	+	+	—	—	—	+	+	+	+	—	
14.........	+	+	—	—	—	+	+	+	+	—	Blood culture negative.
20	+	+	+	—	—	+	+	+	+	—	Blood culture negative.
Group B—											
9.........	+	+	+	—	+	—	+	+	+	—	
22.........	+	+	—	—	+	—	+	+	+	—	
21a........	†	+	+	—	+	—	+	—	+	—	
7.........	†	+	+	—	+	+	+	+	+	—	
11.........	†	+	—	+	+	—	+	+	+	—	
13.........	†	—	+	—	—	—	—	—	—	—	

*Culture obtained at farm. † Methemoglobin.

On the evidence presented, the milk was immediately pasteurized at the sanatorium and only one case developed subsequent to this procedure. Gargles were distributed to all the patients and employees on the second day of the epidemic, while a number also received additional local treatment with hydrogen peroxid, alkaline solutions and iodin. This procedure naturally embarrassed the bacteriologic findings, and although it would have been interesting to discontinue the local treatment in order to make a more detailed bacteriologic study, under the circumstances, it was not considered a warrantable procedure. Nevertheless, a total of twenty-two cases, most of which occurred in the first forty-eight hours, have been studied bacteriologically in detail. The data obtained and presented in the accompanying chart point conclusively to a streptococcus infection as the etiologic factor in the present epidemic. Further, the interesting point developed that in fifteen of the cases the streptococci isolated gave biologic reactions identical with or strikingly similar to those of the organism isolated from the child on the farm.

The organisms isolated may be conveniently grouped as follows:

Group A.—This comprises in all, seventeen strains, including Culture 18 obtained from the child at the farm, and 24*b*, isolated from the patient developing peritonsillar abscess. The members of this group are characterized by their hemolytic action, their ability to ferment salicin, their negative reaction to raffinose, mannite and inulin, and their insolubility in bile. Cultures 6*b*, 12*a*, and 14 may properly be included in this group although they exhibit a slight variation in their ability to attack dextrose, and also Culture 20 which further ferments raffinose. It will be observed that the fermentation reaction of all the members of this group agree with those of the pyogenes type of streptococci. That the infecting organism in this epidemic was the *Streptococcus pyogenes* is confirmed by the pathogenicity for rabbits, of the members of this group.

Group B.—The other organisms charted show such varying characters as would be exhibited by the streptococci normally present in the upper respiratory tract.

To secure the causal agent directly from the milk when the source of infection cannot be traced to one of the animals in the herd is an almost insurmountable task, and one is thus compelled to rely solely on circumstantial evidence. That circumstantial evidence may prove fallacious has been emphasized by many writers, but from the facts correlated in the present instance, evidence closely bordering on certainty points to the milk as the distributing agent.

The frequency of associated throat inflammation in pulmonary tuberculosis makes a diagnosis of a mild intercurrent tonsillitis particularly difficult. Of the cases, 29 per cent. exhibited only slight tonsillar and pillar injection with or without glandular involvement in the submaxillary and the cervical regions. The constitutional symptoms were uniformly mild in character. Great care was exercised to include in this group only the patients who, previous to the onset of the epidemic, had not complained of local throat inflammation, and who requested treatment for the condition at the time of the epidemic. Certainly 71 per cent. of all cases showed definite local and constitutional disturbances. The tonsils were enlarged, the mucosa swollen and injected. A discrete exudate appeared in 62 per cent. Confluent exudates were not observed. Extension of the inflammatory process to the pillars occurred in 91 per cent.; involvement of the uvula in 73 per cent., and of the pharynx in 93 per cent. Varying degrees of glandular involvement at the angle of the jaw were noted in all cases. In children the glandular enlargement was uniformly more marked. The degree of enlargement, however, was not comparable to that described by Hamburger[7] in the Baltimore epidemic in which the little ones looked like victims of Hodgkins' disease. No apparent enlargement of the liver or spleen was noted. Abdominal pain occurred in some instances, but without subsequent development of peritonitis. Tonsillar abscess developed in two cases during convalescence. From one the causal streptococcus of the epidemic was isolated. Unfortunately, no culture was made from the second case. The constitutional symptoms were those of ordinary follicular tonsillitis: the onset was ushered in by malaise, headache, chilly sensations, and nausea. Severe vomiting occurred in some of the cases. Except in a few cases, the temperature elevation did not exceed 102 F. In some instances, the entire course of the disease was marked by a subfebrile temperature. In three cases, the height of the fever was associated with severe constitutional disturbance and a moderate leukocytosis, which suggested the possibility of a general septicemia. Blood cultures were made to determine this point, but the results were negative in each instance.

It has long been recognized that intercurrent infections occurring in the course of pulmonary tuberculosis may exercise a detrimental influence on the lung lesion. In view of this fact, a comparative clinical study was made to determine the effect of this transient streptococcus infection on the progress of the disease. It was thought that an interval of one month, following the termination of the epidemic, would suffice for the complete subsidence of the local and constitutional disturbance arising from the tonsillar infection. If a critical study of the symptoms and physical findings now showed obvious change when compared with the examination just preceding the epidemic, it might appear reasonable to assume that the cause lay in an exacerbation of the tuberculous lesion, resulting from the transient throat infection. The data obtained proved highly interesting. The distribution of the epidemic did not appear to be influenced by the stage of the pulmonary disease. Except in some instances, to be detailed later, it may be said that in the afebrile cases, with the disappearance of the local throat inflammation the fever promptly returned to normal, and in those previously exhibiting fever, no tendency to assume higher limits was observed.

The determination of the loss of weight was complicated by an outbreak of severe gastro-intestinal toxemia, with diarrhea, involving 53 per cent. of the patient population. As this followed directely after the sterilization of the milk, we tentatively associated the outbreak with the milk. The average loss of weight, excluding those with intestinal complications, was 5½ pounds. The largest reported loss was 12 pounds. These figures were obtained immediately after the close of the infection, and it was interesting to note that after a lapse of one month, in practically every case, the lost weight was regained. In all patients, malaise persisted for varying intervals, and manifested itself in a disinclination for exercise, and weakness, and was frequently accompanied by pain localized as a rule in the thorax, although pain in the joints was also noted. Anorexia ceased with the termination of the throat inflammation. The rapid gain in weight indicated that the temporary loss of appetite was quickly restored to normal. Cough was necessarily accentuated and the amount of sputum, increased during the height of the infection, gradually, with few exceptions, subsided to the usual quantity. Twenty-four hour specimens of sputum were collected to determine any observable changes in the character and quantity, and any increase in the number of tubercle bacilli in the positive cases or their presence in those previously negative. No change occurred in the latter and no observations sufficiently outspoken to be worthy of note were observed in the former. In three cases suffering from tuberculous involvement of the larynx, one with marked infiltration and ulceration showed no untoward effects locally. The enlarged glands at the angle of the jaw had in every instance subsided at the time of the examination. The frequent occurrence of cardiac complications in acute throat affections made us especially attentive to this condition, but, probably due to the mild general character of the infection, no lesions were discovered. One case of mitral regurgitation showed no ill effects as a result of the infection.

A brief summary has been made of six cases in which the clinical course of the tuberculosis was apparently detrimentally influenced as a result of the throat infection. One non-tuberculous patient developed a peritonsillar abscess complicated by a mild attack of arthritis and pleurisy.

SUMMARY OF CASES

Case 2787, Stage 2.—Sputum blood tinged during convalescence, extensive fresh pleural involvement at left base with localized pain, no exudate. Lumbago, general malaise, weakness. Three pounds under former weight. No rise of temperature.

Case 2243, Stage 2.—Malaise, weakness, pain over seat of lesion dating from tonsillar infection, extension of lesion with increased moisture.

Case 3026, Stage 1.—Signs increased, slight extension of inflammatory process. Pain right base with fresh pleural involvement. Constitutional symptoms aggravated.

Miss E., Non-Tuberculous.—Pain right shoulder and corresponding knee, left base pleurisy with accompanying pain, tonsillar abscess; convalescence protracted. Two months later, reexamined, recovered. Evidence of base pleurisy still exists.

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[7] Hamburger, Louis P.: An Epidemic of Septic Sore Throat in Baltimore and Its Relation to a Milk Supply, The Journal A. M. A., April 15, 1911, p. 1109.

Case 2364, Stage 1.—Fresh pleural involvement, left base; no pain; no increase of either local or constitutional symptoms.

Miss G., Employee, Stage 1 Plus.—Formerly a patient. Eight months previous to tonsillitis, entire absence of cough and expectoration, now complains of general malaise. Pain in left knee joint. Weakness, dry hacking cough with expectoration, 10 to 15 c.c. in twenty-four hours. Tubercle bacilli absent. No extension of lesion. Increased moisture and right base pleurisy.

To interpret slight variations in the physical findings of tuberculous patients as evidence of increased focal disturbance, may lead to error, unless such changes are accompanied by an increase of the constitutional symptoms. In reviewing the cases cited above, the relative frequency of pleural involvement is a striking characteristic, and although no temperature rise was noted at the time of the examination, there no doubt occurred at the onset of the pleurisy some temperature oscillation which failed to be recorded.

The susceptibility of serous membranes in the presence of acute tonsillar infection has been frequently emphasized. The apparent predisposition of the pleura in the present epidemic may be due, in part at least, to a lowering of the original resistance of this tissue as a result of the existing tuberculosis.

Milk borne epidemic sore throat, as reported by English authors and in most of the epidemics occurring in this country, is a severe disorder followed by serious complications and having a relatively high mortality. In striking contrast to this picture is the present epidemic, which was characterized by a mild form of infection with few resulting complications and no mortality. Notwithstanding the mild nature of the infection, the evidence would seem to sustain the supposition that acute inflammatory throat conditions are especially to be avoided in pulmonary tuberculosis, since their presence may exert a decidedly harmful influence on the pulmonary lesion.

THE PREPARATION OF DIABETIC PATIENTS FOR OPERATION

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There are three dangers which are commonly accepted as accompanying operations on diabetic patients—wound infection, non-healing, and diabetic coma. The method of preparation for operation still frequently followed is the removal of sugar and starches from the food. The theoretic basis of this treatment is the conception that the slowness of healing of the operation wound and its liability to infection are to be ascribed to the direct action of the excessive amount of sugar in the blood and tissues, and that diabetic coma is especially likely to occur in those patients in whom the diabetic condition, as judged by the amount of sugar excretion, is especially pronounced. An endeavor is therefore made to get rid of the hyperglycemia before operation, and the patient is given a carbohydrate-free diet until the sugar in the urine is eliminated or has been greatly reduced in amount.

This method of preparation does not attain its object. Unfortunately it is not simply ineffectual, it is positively disastrous in its results. It is the best way possible to subject the patient to the maximum degree of risk. Yet the theory on which it is based seems plausible enough; indeed it is the first obvious hypothesis which anyone could probably make. This is, as a matter of fact, exactly what it is. It is a pure hypothesis, unsupported by any experimental work. Investigators have long ago put it to the test and found it wanting. They have published their results in technical journals, and have gone on to make other hypotheses and other experiments. In the meantime many clinicians, concerned more with practice than with theory, continue to act on the not unnatural assumption that since a reduction of the amount of carbohydrate in the food is one of the standard principles of treatment in diabetes, it is all the more necessary to carry it out rigorously as a preparation for operation, when the patient is going to be in danger according to the intensity and the grade of the diabetic condition from which he suffers.

Clinical and experimental research work not infrequently clears up the theory of a disease, but does little for its treatment. In diabetes the reverse has been the case, for the mystery of the origin of the condition is still substantially intact, while a great deal of knowledge has been gained which is of importance in the actual management of patients. This question of the best way to prepare such a patient for operation is an excellent example of that fact.

A special liability to infection exists in diabetes. Clinical experience shows it, and experimental research confirms it. It is therefore one of the dangers of operation. Are there any steps which can be taken to guard against it? The answer depends on whether we can remove the cause of the decreased resistance of the tissues. If it is the increased sugar in the blood, we can do a great deal toward removing it. It is certain, however, that the sugar in itself has nothing to do with it. An animal may be made intensely hyperglycemic and yet show no increased liability to infection; but when the hyperglycemia is due to the removal of the pancreas, this liability shows itself. Both may be effects of the same cause, but they have no direct relation to one another. By cutting off carbohydrate food, many diabetic patients will become free from sugar in the urine, but there is just as much chance of infection then as when the urine and tissues are loaded with sugar. The fact must simply be accepted that we have not, as yet, any specific means of dealing with this danger. That will not deter a surgeon from operating. There will be no infection in operating on aseptic tissues, however low their resistance may be, so long as organisms are not allowed to enter, and even when absolute asepsis cannot be attained, it is not a common experience to find that dangerous wound infections follow.

As regards the second danger—non-healing of the wound—there would seem to be even less to fear. It is even a little doubtful whether the diabetic condition in itself has anything which has any deterrent influence on the process of healing in an aseptic wound. Everyone is familiar with the type of diabetic patient whose most prominent symptom is progressive loss of weight. It is in these cases that, associated with more or less marked inability to assimilate dextrose, there may also be an analogous though less pronounced disturbance in the utilization of amino-acids, which are found in somewhat increased amounts in the urine. Here, again, there is no direct relationship between the amount of sugar in the urine and this interference with protein metabolism. Many persons who have constantly from

4 to 5 per cent. of sugar maintain their weight for years, while others, with perhaps a less marked inability to utilize sugar, waste rapidly. It is in these cachectic cases, perhaps, that there may be some possibility of delayed healing, but whether this is to be ascribed to some unknown concomitant of the diabetic condition, or is simply part and parcel of the cachectic state, it is impossible to say. In two of the six cases we have seen recently there was well-marked cachexia and yet the wounds healed rapidly. This seems to be the common experience, and this danger, if it exists, is a minor one. At any rate, there is no evidence that it has any connection with the degree of hyperglycemia.

The last danger—diabetic coma—is the only one of any importance. Karewski stated last year that he had notes of 136 cases of operations on diabetics. There was a mortality of 20 per cent., and, of these, 78 per cent. died in coma and only 21 per cent. from all other conditions.

Diabetic coma is a definite clinical entity. We know that the cause is a poisoning with large quantities of beta-oxybutyric and diacetic acids; and we can only diagnose the condition with certainty when we have demonstrated the presence of large amounts of these substances in the urine. It is true that we need expect no very close relationship between the actual amounts of these acids recovered from the urine and the severity of the patient's condition; for, as has been pointed out, it is the amount retained in the tissues, and not that part which the body succeeds in excreting, which does the damage, and, further, we have to take into account varying susceptibility, not only in different patients, but also in the same person at different times. Yet it remains true that we cannot say a patient has diabetic coma unless we find at least considerable amounts of beta-oxybutyric and diacetic acid, and (if no large amount of alkali has been given) a considerably increased total quantity of ammonia in the urine. The clinical symptom of air hunger cannot be regarded as indispensable for the diagnosis, since Wilbur has shown that an analogous condition may be produced by feeding the neutral sodium salt of oxybutyric acid as well as the acid itself. The neutral salt would not of course lead to the slight increase in the H ion concentration of the respiratory center which is supposed to produce this symptom. Blum has also recently reported death in diabetic coma in a patient to whom so much alkali had been given that the urine had remained alkaline throughout, in whom, therefore, no "acidosis" existed. Unless oxybutyric acid or its salts are found in large amount, however, there can be no question of diabetic coma. At present, any patient with diabetes who becomes comatose is apt to be regarded as in diabetic coma. It is rarely possible to make quantitative estimations of acetone bodies, because that requires much time and technical skill, and alkalies have been almost always given, so that ammonia estimations are not decisive. The diagnosis is therefore not checked up. In patients in whom the typical deep breathing is well marked, the diagnosis is nearly always well grounded, but it is not unlikely that in the less typical cases there are some in whom the coma is due to something else than oxybutyrates or diacetates. We have recently seen, in this clinic, two diabetic patients die in coma with somewhat deep breathing but without the typical polypnea, in whose urine there was no large amount of acetone bodies or ammonia. They died in coma, but not in diabetic coma. Karewski does not give details in connection with his cases of coma following operation, but surgeons who have seen a number of cases state that, in a certain proportion, the coma is not by any means clinically typical. Exact estimations of the quantity of acetone bodies in the urine and in the blood and tissues are necessary in such cases in order to establish definitely that they are not true diabetic coma. We do not as yet have such estimations, but it would seem probable that there is a form of death in coma which is caused by something else than poisoning with acids.

For this reason one cannot say that true diabetic coma is the only special danger after operation on diabetics. There may well be something else to fear about which we know nothing. True diabetic coma is, nevertheless, certainly not uncommon after operation. It is the only known danger of any account which arises after operation as a direct result of the diabetic condition. From a practical point of view it is this we have to guard against.

Have we any means by which we can say in what patients diabetic coma would be especially apt to appear after operation? It is natural to suppose that in severe cases it would more commonly appear than in mild ones. Karewski states, however, that nearly 50 per cent. of his cases of coma were in patients classified as having mild diabetes. This division into severe and mild cases is one which is based on one manifestation of the condition, that is, the amount of sugar excreted in the urine. If under dietetic restrictions the patient becomes sugar-free, he is said to have "mild" diabetes, if not, it is a case of "severe" diabetes. We must conclude, then, that the amount of sugar in the urine is no indication of the degree of danger. This, after all, is not so surprising, for it is not the loss of power to use sugar which produces diabetic coma, but the loss of power to oxidize beta-oxybutyric acid to carbon dioxid and water. It is the common clinical experience that in many cases there is no close parallelism between the disturbance of carbohydrate and fat metabolism. Patients who are difficult or impossible to render sugar-free may have very little difficulty in dealing with fatty acids, while other patients who have only a moderate amount of sugar in the urine, may have a relatively large output of acetone bodies.

If, then, we turn our attention to the fat metabolism, and put all the patients concerning whom the question of operation had been raised, under the same conditions as regards diet, would it be possible from the relative amounts of acetone bodies to tell the relative danger these patients would run? Is a patient who excretes 10 gm. of acetone bodies in twice as much danger as one who under the same conditions excretes only 5 gm.?

We know that this is by no means always the case. Patients are seen who over long periods of time lose large quantities of fatty acids, as much as 25 gm. daily, who yet do not develop diabetic coma. On the other hand, it may appear unexpectedly in those who excrete relatively small amounts of acetone bodies. There is quite commonly this element of surprise in the onset of the condition, as if the neutrality regulating mechanism of the body were overwhelmed by a sharp and complete failure to oxidize the fatty acids; as if the hidden factors of safety, working more or less efficiently in spite of difficulties, had suddenly given way under some added strain. Although, from the amount of acetone bodies alone, we cannot pick out those patients who are thus on the verge of diabetic coma, if with this we could combine observations on the rate of increase of acetone body excretion, following an increase in the total amount of fatty acids undergoing oxidation, we should probably get nearer to the crux of the question, for this would be equivalent to a functional test of the integrity of the fatty acid oxidizing mechanism under strain.

We have a method which is easily applied, of throwing a strain on the capacity of the organism to oxidize fatty acids. When carbohydrates and proteins are removed from the food, the fats are mobilized to provide nourishment for the body. The quantity of beta-oxybutyric acid produced is greatly increased. According to the capacity of the body this will be oxidized to carbon dioxid and water or will be excreted unchanged.

With this idea in mind, we have recently put diabetic patients, concerning whom the question of operation has arisen, for three days on a diet which contains 100 gm. of carbohydrates, 80 gm. of protein, and 150 gm. of fat. At the end of this period of moderate carbohydrate and protein intake, they are under approximately the same conditions, and their relative excretion of acetone bodies may be compared.

During the next three days an abrupt change is made in the diet. The carbohydrates are reduced to 18 gm., and the proteins to 27 gm. By giving 200 gm. of fat and some alcohol, the caloric value of the diet is made as high as possible. The patient of course is kept absolutely at rest in bed.

In some patients who have shown a high excretion of acetone bodies even during the period of moderate carbohydrate intake, it may be safer to give alkali to facilitate the excretion of the increased amounts of acetone bodies which this cutting off of carbohydrates and proteins will produce, and, in such cases, the estimations of the ammonia content of the urine will indicate a slighter degree of acidosis than really exists. Then we have to rely on such clinical approximations to the total quantity of acetone bodies as are given by Hart's method, when, as is usually the case, we have no facilities for more accurate estimations. This is seldom a serious handicap, since stress is laid not so much on the absolute degree of acidosis as on the rate at which it augments under the above conditions. The excretion of acetone bodies is always increased, but the important point is the relation between the amount excreted on the last day of the second period and the end of the first.

We have not had sufficient experience with this method to allow us to give any definite ratio between the ammonia or acetone body excretion of these two periods, which should be regarded as indicating a special liability to the onset of diabetic coma, and indeed it is evident that no hard and fast rules can be laid down. The absolute amounts as well as the relative increase must be borne in mind. A large relative increase in a patient who was excreting very little acetone bodies will not have the same significance as a similar increase when the previous elimination was high.

Both factors have to be taken into account in forming a judgment, but, of the two, the greater stress should probably be laid on the results of the functional test. After a considerable number of cases have been studied along these lines, it will be possible to formulate more precisely the significance of the results as regards prognosis. We intend to continue this work, for there is an obvious need for a functional test to indicate not only the extent of the deficiency in the fatty acid metabolism in diabetes, but also its stability or instability under strain.

It is, of course, only in those cases of diabetes in which operation may be safely delayed and possibly avoided altogether that it is wise to put the patient through this test. When there is any septic condition (a spreading moist gangrene for instance), the statistics which have been collected show that the earlier the operation the lower is the mortality. No time should be wasted in trying to estimate the risk of such an unavoidable operation, when with every day the danger increases.

If an operation is decided on or is imperative from the nature of the case, how can the patient be prepared against the danger of diabetic coma? When time is not all-important, the obvious indication is to endeavor to bring about a storage of carbohydrate in the liver in the form of glycogen. Even in the most severe disturbances of the power to utilize sugar, the capacity is not entirely lost, since even in these patients we can almost always reduce more or less the degree of acidosis by feeding carbohydrates. It is a mistake to wait until the condition of diabetic coma is evident before carbohydrates are given, for then it may be too late and the damage already done. When the organism is under strain and mobilizes its food reserves, glycogen is the first line of defense. It is only when the store is becoming exhausted that the fats are called on. Glycogen spares fat. The less fat is broken down, the less acetone bodies will be produced.

The *accumulation of glycogen* in the body is the aim. The best means to attain it in most cases is to feed *oatmeal.* This was discovered accidentally by von Noorden. Allen gives the best explanation why this particular form of carbohydrate should be better borne than others. He points out that oatmeal calls for a minimum secretory activity on the part of the pancreas, and brings forward interesting evidence in favor of the view that there is a relationship between the external and internal secretion of the pancreas.

Success in producing a retention of carbohydrates with the oatmeal diet is much more likely to be attained if it has been preceded by a period of nearly complete rest to the carbohydrate regulating mechanism of the body. The fat-alcohol diet, which has been suggested as a means of testing the integrity of the mechanisms concerned in the complete combustion of fatty acids, at the same time serves as the best preparation for the oatmeal, for it contains only 18 gm. of carbohydrates and 27 of protein. Assuming that the greatest conceivable amount of sugar is formed from the protein, the total sugar which could be produced only amounts to about 40 gm. Under these conditions the diabetic organism seems to store up within itself some substance necessary for the fixation and utilization of sugar. When larger quantities of carbohydrates or protein are ingested, the amount of this hypothetic substance is not only insufficient, but the organ or organs concerned in its production are so overstrained that the amount turned out is actually smaller. At any rate, whether or not this is the explanation, it is a well-established clinical fact that after a period of sugar starvation, the amount of carbohydrate which is retained in the body is, in the great majority of cases, much larger than it was before. It is a mistake to have any standard quantity of oatmeal to give all patients, because there are some who, if you give them 150 gm. of carbohydrate in this form, retain more than if you make them take 300 gm. Digestive disturbances must be carefully watched for. It appears that they seldom occur, but if they do, all the good which may have been acquired is probably lost, and the operation will have to be delayed until the patient has fully recovered.[1]

During this period of oatmeal feeding, the sugar in the urine will greatly increase or may reappear if the patient has become sugar-free under the fat-alcohol diet. The amount should be estimated and compared with the sugar-value of the diet in order to determine how much is retained; but apart from this no attention should be paid to it. The fact that the patient has a high sugar concentration in his blood and urine is not in itself any contra-indication to operation.

Another essential part of the preparation is to have the patient in the best possible condition to excrete large amounts of the acetone bodies, if they should be produced during or after the operation.

When alkali is given to a diabetic patient with acidosis, the effect is almost always a marked increase in the acetone bodies in the urine, an increase which may extend over several days; but alkali in itself has no influence on the production of these incompletely oxidized acids. It can neither increase nor decrease the actual amount formed. All it can do is to turn them into a form in which they can be readily gotten rid of. Even in comparatively mild acidosis an increased excretion after the giving of sodium bicarbonate may be observed. This would seem to be a significant fact. It would indicate that, from the beginning, there is the tendency to that heaping up of oxybutyrates and diacetates in the tissues, which, when it reaches a certain grade, culminates in the condition we know as diabetic coma. We do not know the reason for this difficulty in excretion. Probably, in the tissues, oxybutyric and diacetic acid exist largely in the form of ammonium salts, since the store of free fixed bases in the body is limited and is required for other purposes, whereas there is an unlimited potential reservoir of ammonia. Perhaps the ammonium salts are in some way held in the tissues, or it may be that the kidneys can more readily excrete the sodium than the ammonium salts. Investigations along these lines are badly needed. There is no doubt, however, about the practical indication. If possible, no patient should be operated on until he has been oversaturated with fixed bases, that is to say, until such an excess has been given that the urine is distinctly alkaline. Then we may be sure that all the retained acetone bodies have been washed out.

On theoretic grounds we ought to give a mixture of various bases, sodium, potassium, calcium, and magnesium, since the available stock of each of these minerals may be depleted in a patient with acidosis. Sodium bicarbonate, however, remains the alkali which can be taken in the largest quantities, and very large quantities are sometimes required before the urine becomes alkaline. It is best to give the alkali half an hour before each two- or three-hourly feeding with oatmeal. Doses of from 5 to 10 gm. in plenty of water may be necessary, and one or two doses should be given at night, if it can be done without disturbing the patient. The quantity of alkali required to make the urine alkaline is an indication of the amount of acetone bodies stored in the body, and this is another point to be considered in prognosis.

When by these means we have succeeded in causing some storage of glycogen, and have saturated the body with alkali, there is no doubt that the patient is in better condition for operation and is less likely to die of diabetic coma than he would have been under the old plan of carbohydrate starvation. It is well to remember, however, that these are only palliative measures, and do not influence the cause of the condition. Diabetic coma still appears in spite of these precautions. They are only frail barriers, which a suddenly rising tide of acetone bodies may easily sweep aside. We have not even begun to work out the best method of preventing this catastrophe until we go to the root of the matter and find the ultimate cause. There are many difficulties in the way of such studies. It has not been approached from the experimental side, because nothing quite analogous to diabetic coma can be produced in dogs, though it is to be hoped it may be found possible in monkeys. In man, of course, treatment must supersede investigation.

In the absence of the fundamental knowledge necessary for any specific treatment, the best that can be done is to look for factors which may act as exciting causes.

Why is the incidence of coma so enormously higher in diabetics who are operated on than in those who are not? It cannot be the amount of tissue trauma alone, for coma is common after minor operations. It is not the anesthetic, for it may appear when local anesthesia or no anesthetic is used; it is not after any special sort of general anesthetic, for it occurs after all. As has been mentioned, about 50 per cent. of the deaths in coma after operation are in patients in whom the defect in the carbohydrate metabolism is not very pronounced. Even the degree of disorganization of the fatty metabolism cannot be taken as a safe guide, though it is the best we have. There seems to be a something incalculable and mysterious which may upset prognosis, however carefully the evidence is balanced.

What is there common to all operations which can vary in its intensity this bizarre manner, which may be severe after a slight operation, and negligible after an extensive one? Shock, if that word is taken in its widest significance, is the only condition which may so act. The extent of the psychic and physical alterations induced by operation cannot be predicted in any patient, since it depends not only on the objective trauma, but also on the subjective receptivity of the nerve centers. The mental attitude of the patient can be only vaguely guessed, yet this factor may be of primary importance. One man may put his hand in the fire and suffer no shock, while another may die from the stress and turmoil induced by apprehension, before the knife has touched him.

In diabetes we have good reason to believe that bodily or mental disturbances may induce marked variations in the metabolism of carbohydrates and fats. It is an old clinical observation that diabetic coma may follow physical or psychic trauma. A patient breaks his arm or receives some bad news, and a few days later dies in coma, and it is worth noting that some modern investigators are returning to the conception that the origin of diabetes is to be sought for in a functional derangement of the nervous system.

Whether or not this is so, the practical indication is plain. We must regard all diabetic patients, and more especially those in whom a marked instability of the fatty acid oxidizing function has been demonstrated, as being, as it were, on the edge of a precipice. They are maintaining their equilibrium with difficulty, and it is of vital importance that they should not be distracted.

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[1] Perhaps the caramel introduced lately by von Grafe will be found to be even a better substance than oatmeal for producing an accumulation of glycogen in the liver. When dextrose is heated to a temperature of 200 F. for half an hour, it becomes polymerized to substances of high molecular weight, and has been found to be very well assimilated by diabetics.

We have in our hands the means whereby the strain on mind and body of any operation may be greatly reduced. Crile has worked out the details in connection with operations on patients with exophthalmic goiter. If the measures grouped under the term "anoci association" could be applied to all diabetics in whom operation was necessary, it seems not unlikely that the present high mortality from coma would be greatly reduced.

SUMMARY

1. One method of preparing diabetic patients for operation is to give them a sugar and starch-free diet. This is a useless procedure, because, although it may reduce the degree of hyperglycemia and the amount of sugar in the urine, it will not lessen any of the risks of operation. It is more than useless, however; it is dangerous, since it increases the chances of the onset of diabetic coma.

2. When operation is not immediately necessary, and especially in those cases in which the decision as to whether or not an operation shall be performed rests largely on the question as to how much danger would be run by the patient after the operation because of his diabetic condition, it would be a great advantage to have some objective data to supplement the facts relative to this point, which can be gained by clinical observation. The quantity of sugar in the urine is no aid in this respect, for the special danger to life is the failure, not of the sugar, but of the fatty acid metabolism. The coma in which diabetic patients die after operation is, often at least, accompanied by the excretion in the urine of large amounts of unoxidized fatty acids, and there is good reason for believing that the condition is due to poisoning by these acids.

The estimation of the degree of impairment of the power of the body to oxidize fatty acids is therefore of prime importance in deciding whether or not operation is advisable in any particular case; but the amount of acetone bodies (fatty acids) excreted does not give a reliable indication of the degree of danger, because, although that amount may be small, the reserve power of the body to deal with these substances may be very slight, so that there may be a sudden failure under the special strain induced by operation, with the result that diabetic coma ensues. What is needed is a functional test of the fatty acid oxidizing power. A method is outlined whereby, with very simple methods, the amount of acetone bodies or of ammonia under certain fixed conditions is compared with the quantity found under circumstances which call for a marked increase in the catabolism of fatty acids.

3. The fear, excitement and undernourishment of the patient, which frequently accompany operation, brings about a call for the utilization of the food stored in the body. This food consists of glycogen and fat, but the most easily available is glycogen, and there will be no very extensive breaking down of fat into fatty acids until the glycogen stores of the body are largely depleted. Even in cases in which the utilization of sugar is very defective, glycogen will diminish the amount of fat required in such emergencies. One aim of treatment should therefore be to bring about a storage of glycogen in the body before operation. The best means yet devised to this end is the oatmeal treatment introduced by von Noorden.

4. The inability of the kidneys to excrete large amounts of fatty acids is a factor in the production of diabetic coma. The giving of alkali helps the kidneys in this work. Before operation, therefore, it is important to give alkali until the urine becomes alkaline, and to maintain if possible this alkaline reaction after operation.

5. Neither success in inducing a storage of glycogen in the body before operation, nor in keeping the urine alkaline is an absolute barrier against diabetic coma. They are only palliative measures. All those circumstances which unite together to produce shock are factors which act as exciting causes of the condition known as diabetic coma. It is possible to mitigate the action of these agencies by the application of the principles of "anoci association."

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RESULTS OF COMPLEMENT-FIXATION STUDIES WITH THE CORYNEBACTERIUM HODGKINI [*]

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Fraenkel and Much,[1] in 1910, described an organism occurring in Hodgkin's disease. This bacterium, Gram-positive, granular, non-acid fast and sodium hypochlorid (antiformin) resistant was seen in the lymph nodes of twelve out of thirteen cases, but no satisfactory culture was obtained. Negri and Mieremet,[2] in 1913, successfully cultivated this organism from two cases of the disease. They applied the name *Corynebacterium granulomatis maligni* to the bacillus on account of its diphtheroid nature. In the two cases studied, complement fixation was tried, but the results were negative. No methods were described in their article. In the same year Bunting and Yates[3] obtained pure cultures in four out of seven cases of Hodgkin's disease and renamed the organism *Corynebacterium hodgkini*, which being binomial, is a more suitable name.

Billings and Rosenow[4] obtained pure cultures of this diphtheroid bacillus from the glands of patients suffering from Hodgkin's disease, and in one case in which the lesion was of the lymphosarcoma type. Subsequently, Steele[5] reported the finding of the same diphtheroid organism in a case of Hodgkin's disease as well as in a case of lymphatic leukemia. Recently Yates, Bunting and Kristjanson[6] have found a similar organism in Banti's disease.[7]

Without going into the question of whether or not this bacillus is the causative factor of Hodgkin's disease, lymphosarcoma, lymphatic leukemia and Banti's disease, I shall state my experience with it in regard to complement fixation with patients' serums. Incidentally, comparative studies were made between it and other diphtheroids.

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[*] Work done under the tenure of the Eugene Meyer, Jr., Fellowship in Pathology, Pathological Laboratory, Mount Sinai Hospital, New York City.

[1] Fraenkel and Much: Ztschr. f. Hyg., 1910, lxvii, 159.

[2] Negri and Mieremet: Centralbl. f. Bakteriol., 1913, lxviii, 292.

[3] Bunting and Yates: Cultural Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236; An Etiologic Study of Hodgkin's Disease, The Journal A. M. A., Nov. 15, 1913, p. 1803.

[4] Billings, Frank, and Rosenow, E. C.: *The Etiology and Vaccine Treatment of Hodgkin's Disease*, The Journal A. M. A., Dec. 13, 1913, p. 2122.

[5] Steele, A. E.: Corynebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease, Boston Med. and Surg. Jour., Jan. 22, 1914.

[6] Yates, J. L.; Bunting, C. H., and Kristjanson, H. T.: The Etiology of Splenic Anemia or Banti's Disease, The Journal A. M. A., Dec. 19, 1914, p. 2224.

[7] Kusunoki (Virchows Arch. f. path. Anat., 1914, ccv, 184) found this diphtheroid in sixteen cases of Hodgkin's disease. The article contains a complete bibliography.

The methods of procedure were as follows:

The Antigen.—A polyvalent antigen was prepared using three strains of the organism, two of which were obtained through the courtesy of Dr. Rosenow, and one was cultivated by Dr. Celler, from the glands of a patient suffering from pseudoleukemia. At the same time, for the sake of comparison, individual or single strain antigens were prepared from each of the three. The organisms were grown for twenty-four hours on 0.5 per cent. glucose-serum-agar in Blake bottles. The growth was usually luxuriant, so that 10 c.c. of sterile distilled water were sufficient to wash off the growth from each Blake bottle. The suspension was autolyzed at 60 C. (140 F.) for one hour, and then kept at 37 C. (98.6 F.) for twenty-four hours. This thick fluid was then filtered through a size N Berkefeld filter at the rate of from 3 to 4 drops per minute. The resultant clear fluid was heated at 56 C. (132.8 F.) for one-half hour on each of three consecutive days, but no preservative was added. For comparison, antigens of unfiltered suspensions of the organism were used, but these were so anticomplimentary and non-antigenic that they were discarded.

Immune Serum.—To test the antigenic properties of the antigens, immune rabbits' serums were prepared. A saline suspension of growth of the organism on one agar slant was injected intravenously; four days later two agar slants, followed in four days by three agar slants and at the same interval by four slants. This organism being completely avirulent for rabbits, these large doses could be given with impunity.

Nine days after the last injection, the rabbits were bled. All the rabbits were tested previous to immunization and those that would bind complement in high dilutions in the presence of antigen were discarded. It is to be remembered that most rabbits' serums will bind complement in the presence of a bacterial antigen when used in amounts of 0.1 c.c. or more.

In this manner, immune serums were developed against the three strains as well as against each single strain.

Patients' Serum.—This serum was inactivated at 56 C. for one-half hour.

Complement and Hemolytic System.—Guinea pig serum 1:10 was used for complement. Rabbit antisheep red blood cell amboceptor and sheep cells in a 5 per cent. suspension were employed. These reagents were carefully titrated before use. In general, Wassermann's technic (but half his quantities) was followed, and twenty-four hour ice-box fixation allowed before the hemolytic system was added. An active hemolytic system is essential in order to obtain clear-cut results in all bacterial antigen work.

Titrations.—Using these reagents, the antigens were first titrated for their anticomplementary unit, after being "normalized" to 0.85 per cent. tonicity. The amounts used never exceeded one-fourth the anticomplementary titers, to avoid the danger of non-specific fixation. The antigenic powers of the antigens were determined by titrating this amount against decreasing amounts of immune rabbits' serums. In this way antigens having a long "range" were used with patients' serums. For example, an antigen, the anticomplementary dose of which was 0.6 c.c. was employed in amount of 0.15 c.c. This completely inhibited hemolysis with 0.001 c.c. immune serum or one two-hundredth the amount used in test with patients' serums.

Control polyvalent antigens, made of growths of streptococci and gonococci, were employed to eliminate reactions that might be caused by a bacterial antigen as such.

Having obtained highly specific antigens capable of binding complement-fixing antibodies, the following tests were made with patients' serums:

Case 1.[8]—*Histologic diagnosis, Hodgkin's disease.* Blood tested one year and three months after onset of symptoms. Vaccines (of this organism) were given after serum examination. The patient died one month after the test.

Case 2.—Clinical diagnosis, Hodgkin's disease. (The patient refused to have a gland excised for diagnosis.) The blood was tested three months after the onset of the symptoms.

Case 3.—Histologic diagnosis, Hodgkin's disease. The blood was tested two months after the onset of the symptoms.

Case 4.—Histologic diagnosis, Hodgkin's disease. The blood was tested two years after the onset of the symptoms.

Case 5.—Histologic diagnosis, Hodgkin's disease. The blood was tested ten months after the onset of the symptoms. This case was treated with vaccine (of this organism). The patient died two months later.

Case 6.—Histologic diagnosis, Hodgkin's disease. The blood was tested between five and six years after the onset of the symptoms.

Case 7.—Histologic diagnosis uncertain, but a gland showed chronic changes resembling Hodgkin's disease. The blood was tested one year after the onset of the symptoms.

Case 8.—Histologic diagnosis, lymphosarcoma. The blood was tested two months after the onset of the symptoms.

Case 9.—Histologic diagnosis, lymphosarcoma. The blood was tested two months after the onset of the symptoms.

Case 10.—Histologic diagnosis, lymphatic leukemia. The blood was tested three years after the onset of the symptoms.

The serums of these patients were used in amounts varying from 0.05 c.c. to 0.2 c.c. (corresponding to 0.1 c.c. to 0.4 c.c. in Wassermann's system). Ordinarily, the reagents used in this laboratory are gaged so that from 0.05 to 0.1 c.c. gives perfect fixation with other bacterial antigens with specific serums. Using greater amounts of the serum, however, the maximum amount of antigen and longest period for fixation (twenty-four hours, ice-box), the results in these cases were uniformly negative.

At the same time, serums from patients suffering from other chronic conditions, as lues, tuberculosis, pernicious anemia, carcinoma, etc., in all thirty-four, were tested in a similar manner and the results were likewise negative.

An attempt was made to investigate the nature of the *Corynebacterium hodgkini* by making cross-fixation experiments with other diphtheroids.

Rabbits were immunized, as above described, against the xerosis bacillus and Hofmann's bacillus, both pseudodiphtheria organisms. In this work, the preliminary titration (that is, before immunization) of rabbits' serums showed a great tendency on the part of normal rabbits to bind complement with the xerosis bacillus antigen. When such difficulties had been overcome and potent immune serums developed, my protocols (too lengthy for publication here) show that there existed no cross fixation between the xerosis bacillus and the Hofmann bacillus, nor between the Hodgkin's organism and either of the former. Hence the *Corynebacterium hodgkini* is distinct from these pseudodiphtheria organisms.

Mount Sinai Hospital.

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[8] In all the cases the histologic diagnoses were made by Dr. F. S. Mandelbaum, Pathologist, Mt. Sinai Hospital.

Value of Medical Libraries.—It is hard to speak of the value of libraries in terms which would not seem exaggerated. To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all. For the teacher and worker a great library is indispensable. They must know the world's best work and know it at once: they mint and make current coin, the ore so widely scattered in journals, transactions and monographs.—Osler.

TREATMENT OF HEMORRHOIDS BY THE OPEN METHOD

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Hemorrhoids are primarily a varicose condition of the hemorrhoidal veins, and their tumor-like structure is due to this varicosity (Fig. 1).

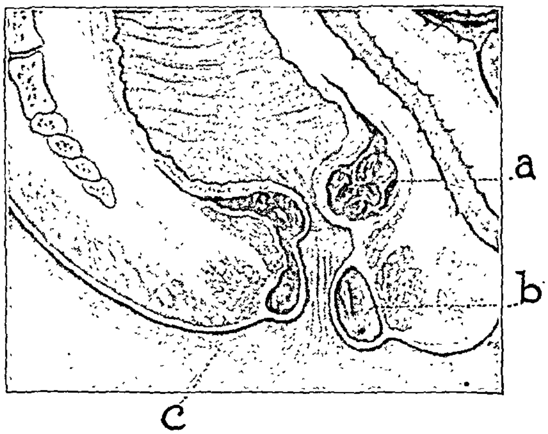
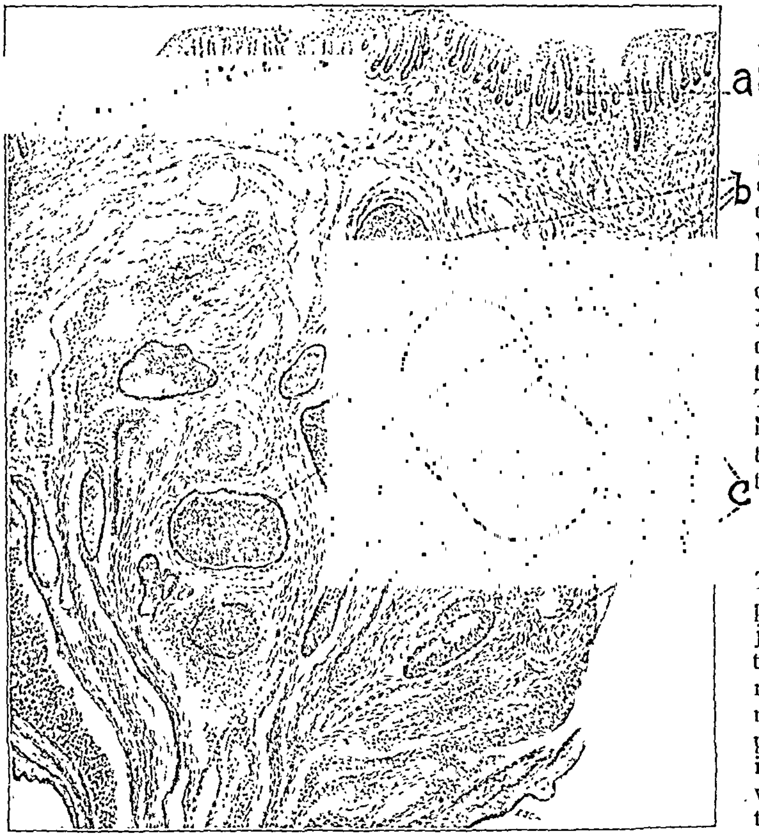


Fig. 1.—Internal hemorrhoid (*a*), external thrombotic hemorrhoid (*b*) and interno-external hemorrhoid (*c*).

They are located on the inner side of—and project into—two similar, hollow, flexible, distensible, collapsible, sensitive and musculovascular cones (Fig. 2). These cones are formed by the coalescence of the hindgut and proctodeum, with their common point of intersection at the pectinate line. One of these is the proximal (or rectal) cone, the other, the distal (or anal) cone. The former is lined with mucous membrane, nourished by the superior hemorrhoidal artery and drained by the superior hemorrhoidal veins. The anal cone is lined with skin, nourished by the inferior hemorrhoidal artery and drained by the inferior hemorrhoidal veins.



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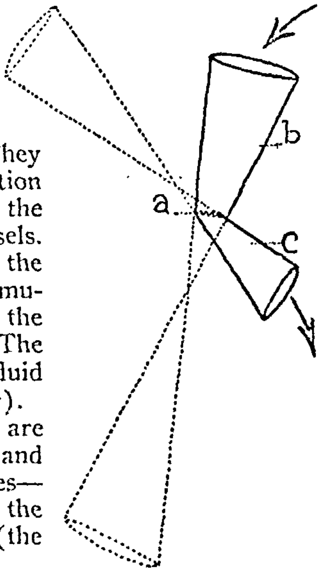

Fig. 2.—Schematic illustration of the anal and rectal cones: *a*, pectinate line; *b*, mucous membrane; *c*, skin.

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Indications for Treatment. — The presence of piles is a justification for their treatment. Hemorrhoids per se may do no harm, but their presence lessens physiologic resistance, while the end-result if they are not treated may be formidable. Treatment is both palliative and operative.

Palliative.—This consists of keeping the bowel movements soft and regular, together with applications of stimulating agents and astringent lotions or ointments.

Operative.—This consists in excising sufficient of the covering of such varicosities so that when the pathologic condition is removed, the operated field will resume its normal state and relation to the contiguous parts. This, in my opinion, can best be done by that method of operating which radically removes the pathologic condition present, traumatizes the tissues least, gives least pain, keeps the patient from his work the shortest period of time, is the safest and freest from danger, and preserves the normal contour and function of the rectum. For want of a better name, I have called this method the open method of operating on hemorrhoids.

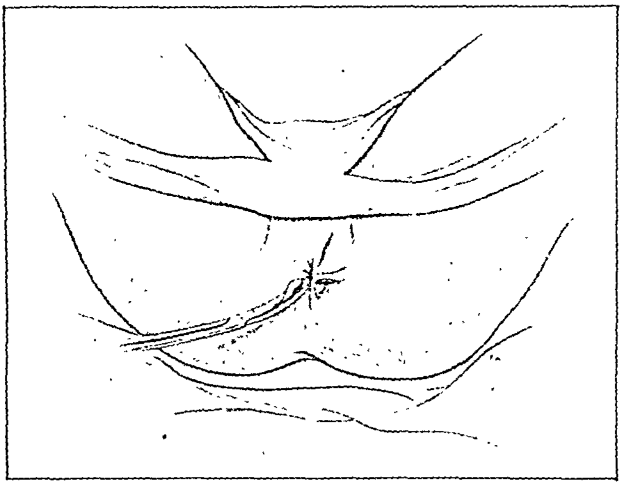

Fig. 4.—Removal of an ellipse from over the clot, the extraction of the clot and the appearance of the cavity after the clot is removed. The scrotal bandage applied. Over draperies have been purposely omitted from Figs. 4, 5 and 7.

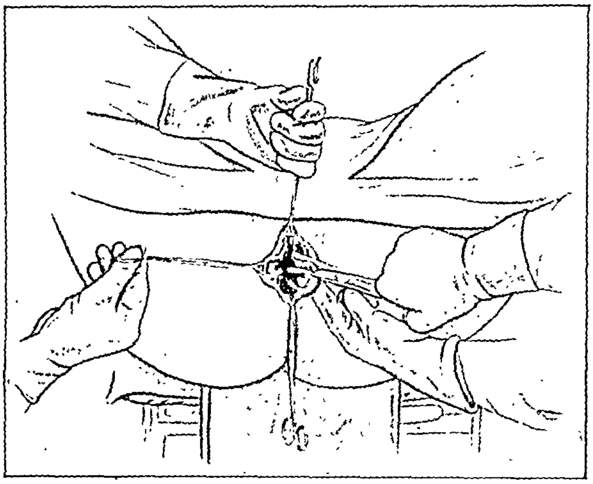

Fig. 5.—Method of bringing the hemorrhoids into view and the *removal of an ellipse from one of the tumors. Vis a tergo* pressure is being applied with the left index finger.

ANESTHESIA

Either general or local anesthesia may be used. I operate on 90 per cent. of my cases by blocking[1] the field of operation, and usually employ from one-quarter to one-half grain of cocain in solution, and about 1 to 2 grains of quinin and urea hydrochlorid in the same manner. The cocain is employed in the strength of from 0.25 to 0.5 per cent.; the quinin and urea hydrochlorid in from 0.5 to 1 per cent. solution. Sometimes the two solutions are combined. The cocain is used for its immediate effect and the quinin and urea hydrochlorid for prolonging the anesthesia. (Novocain may be used instead of cocain.)

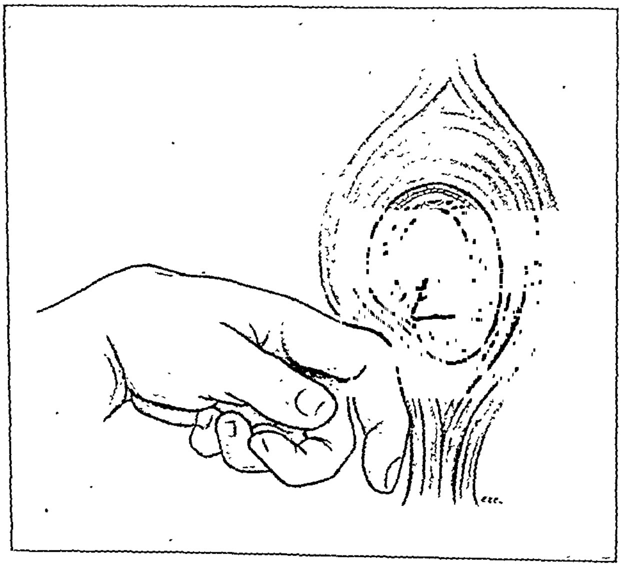

Fig. 6.—Effect of vis a tergo pressure, and line of incision.

I usually anesthetize the perianal skin first, and then the muscles and perirectal structures. A puncture being made in the median raphé about one inch posterior to the anus, the needle is carried from this point first around one, and then the other side of the anus, to the anterior median raphé, depositing the solution in its course. The needle is next introduced into the muscles and up along the sides of the rectum, anesthetizing these structures.

For the deeper tissues, the needle is usually inserted into the anterior and posterior median raphé, also in the right and left lateral quadrants, and carried up along the lateral walls of the rectum. (The finger in the rectum may be used as a guide, if the operator so desires.)

During the last twenty years I have given a fair trial to each of a number of methods advocated which promised a good result. These include the ligature, clamp and cautery, Whitehead's, injections, suturing and other plans, and I have come emphatically to the conclusion that the best way of treating this condition is by the open method before referred to.

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The perianal region is, as a rule, shaved, and the rectum irrigated with compound solution of cresol and water or soap and water. The patient is placed in the lithotomy position and a scrotal bandage (Fig. 4) applied.

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I think all agree that the primary cause of the tumor-like condition is the varicosity. The operative procedure, then, should have for its object the removal of this varicosity.

Since the primary cause of each type of hemorrhoids is practically the same and the difference in structure is only one of degree, the treatment of each variety is—and should be—technically the same. That the technic may be more readily comprehended, I shall first consider the treatment of the thrombotic pile:

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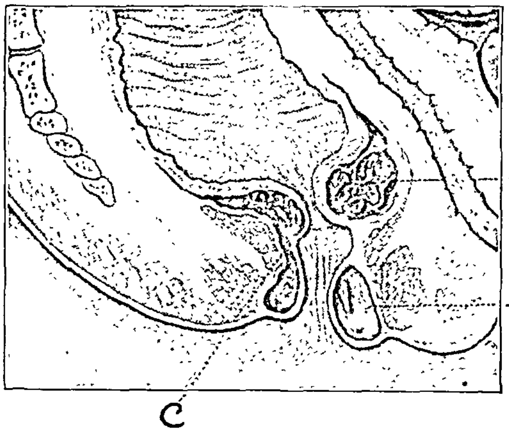
[1] Pennington, J. Rawson: Regional Analgesia in Surgical Treatment of Anorectal Diseases, Am. Med., July 29, 1905.

TREATMENT OF HEMORRHOIDS BY THE OPEN METHOD

JOHN RAWSON PENNINGTON, M.D.
CHICAGO

Hemorrhoids are primarily a varicose condition of the hemorrhoidal veins, and their tumor-like structure is due to this varicosity (Fig. 1).



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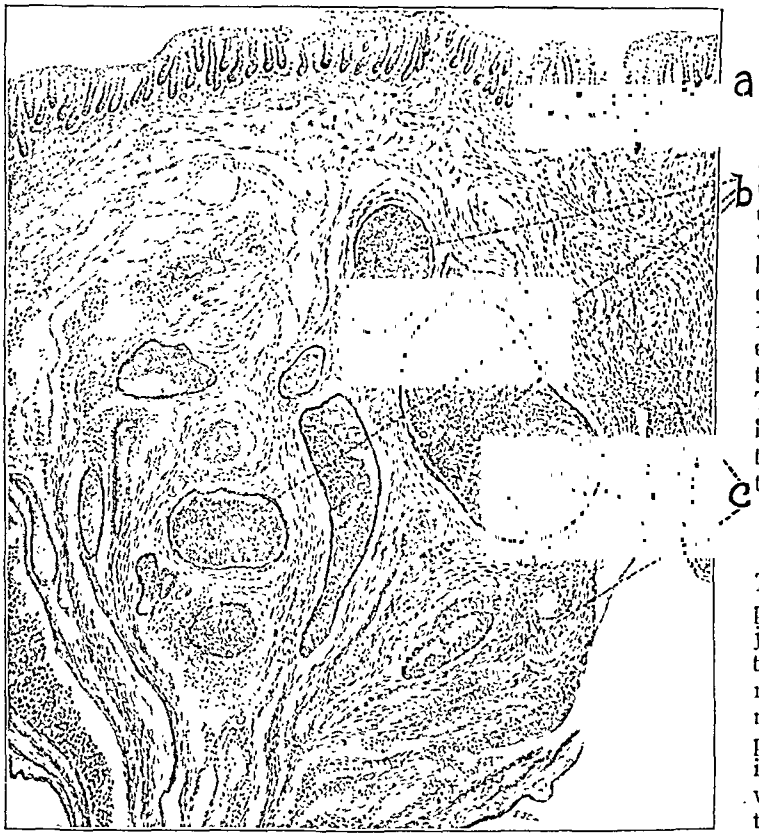

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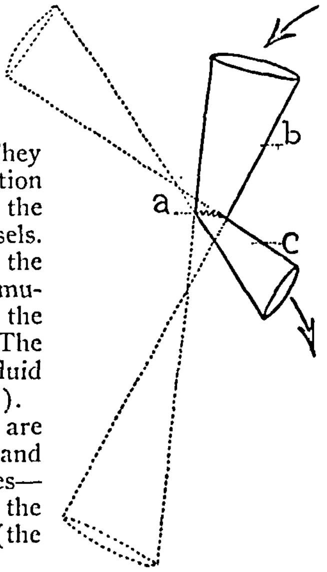

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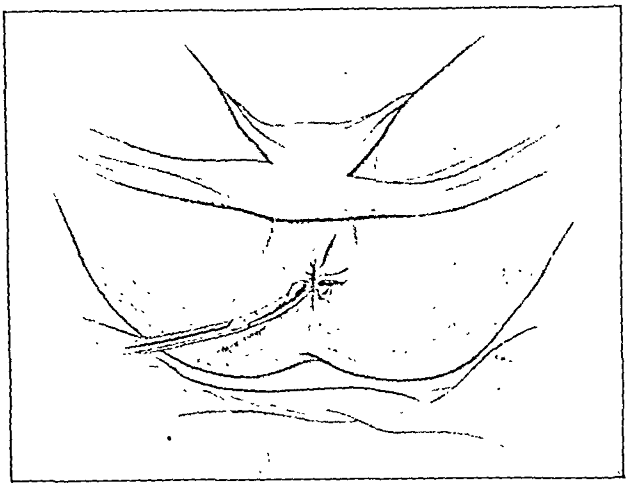

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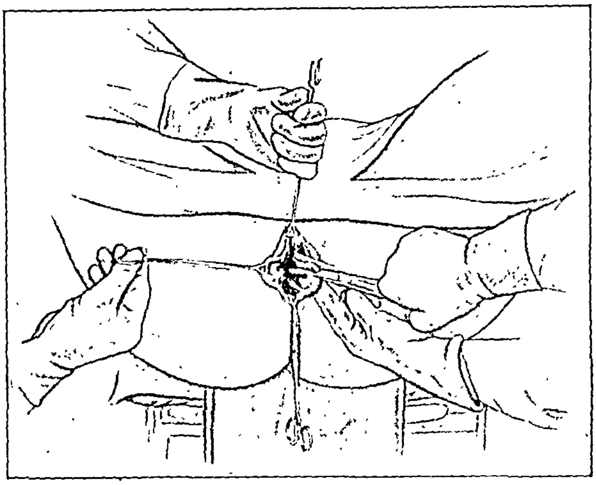

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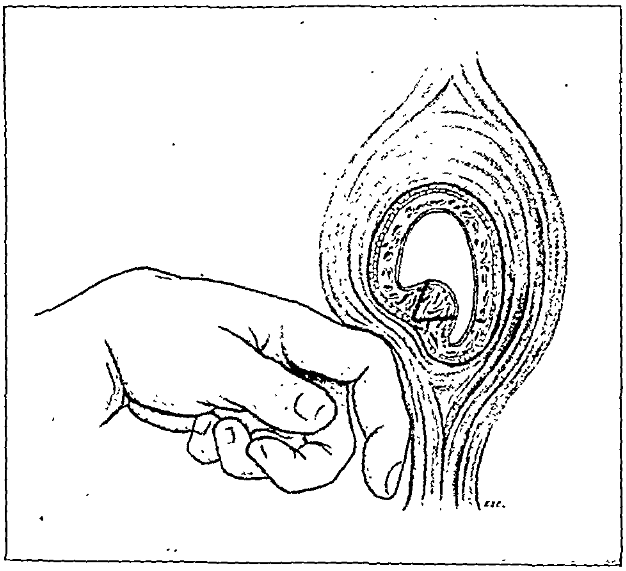

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After the patient is prepared and the tumor anesthetized (infiltration anesthesia only is necessary in this variety), an ellipse commensurate with the size of the pile is removed from the covering of the clot, the latter picked out, and the dressing applied (Fig. 4). I usually dress the wound with rubber-dam, and over this gauze, or with petrolatum and gauze, and a T-bandage. There is little or no after-pain, and the patient is well in a very short time.

Had the blood in the swelling been fluid, it would not have been necessary to pick it out, as it would have escaped and the wall collapsed as soon as the ellipse was removed and the varicosity destroyed. The after-treatment also would have been the same. Should a spurting vessel be exposed in the course of the procedure, it is picked up and twisted or ligated. Such is the principle involved in the open method of treating hemorrhoids.

Because the internal piles are located in the proximal (or rectal) cone it is necessary to bring them into view (Fig. 5). This, after gently stretching the sphincter, is done by means of four T-forceps applied as shown in Figure 5. *Vis a tergo* pressure is made at the base of each pile, forcing it into the field of operation, and an ellipse varying with the size of the swelling removed from the covering of the varicosity by means of scissors curved on the flat (Figs. 5 and 6). Frequently this procedure also destroys the pathologic condition; if it does not, this is readily accomplished by another and deeper cut with the scissors.

The "fleshy pile" is treated in a similar manner. A section is excised from the apex, and then the inside of the pile is removed with the flat-curved scissors (Fig. 7). Sufficient of the mass is removed so that the anal region will assume a normal surface when the operation is completed.

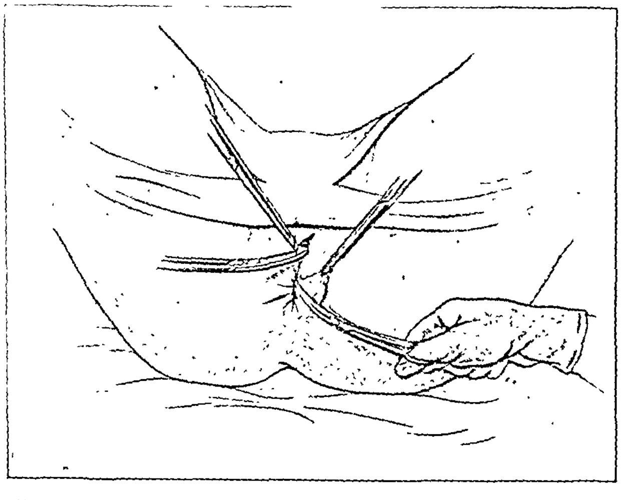

Fig. 7.—Removal of an ellipse from the apex of a "fleshy pile," then dissection out of the inside, and the slit-like appearance of the cavity after the dissection.

In some instances, a ring of flesh completely encircles the anus and extends distally for an inch or more. When this is the case it is removed by the same technic.

The field is then cleared of blood clots and a rubber-covered tampon, which dresses the field in extension, is introduced into the rectum (Fig. 8). Hot wet dressings, a piec of protective and a snugly-fitting T-bandage are now applied.

The dressings and tampon are removed in from eighteen to twenty-four hours, and the hot fomentations continued.

In six or eight hours thereafter, an enema of 3 ounces of olive oil and a laxative are given. The patient does not use a bedpan, but gets out of bed and goes to the water closet or commode; wet cotton is used as a detergent.

Hot fomentations are applied every four to six hours for a few days. The average patient is dismissed on the third or fourth day after the operation. Occasionally one will remain a day or two longer; on the other hand, they frequently leave earlier.

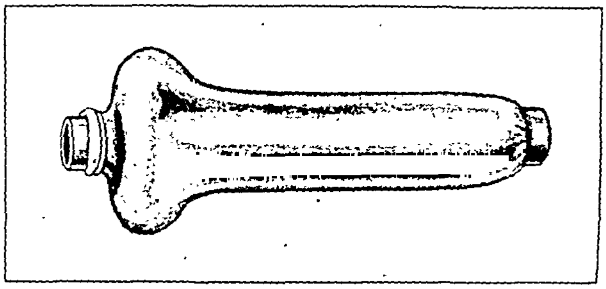

Fig. 8.—Author's rubber-covered tampon. It dresses the wound in extension, lessens pain when properly applied, and facilitates recovery.

31 North State Street.

PARALYSIS OF THE UNGUAL PHALANX OF THE THUMB FROM SPONTANEOUS RUPTURE OF THE EXTENSOR POLLICIS LONGUS

THE SO-CALLED DRUMMER'S PALSY

J. RAMSAY HUNT, M.D.
Consulting Neurologist, New York Neurological Institute
NEW YORK

The structure of tendons represents so perfect a combination of strength and elasticity that rupture under normal conditions is practically impossible. When such accidents occur as the result of violent strains, either the muscle tears or the periosteal insertion of the tendon gives way, often carrying with it a fragment of the subjacent bone.

Before a rupture of the tendon itself takes place, it must first have been weakened by disease, the resulting degenerative changes rendering it incapable of bearing the normal strain of muscular action. For example, the long head of the biceps may rupture after the tendon structure has first been weakened by inflammatory changes secondary to an arthritis of the shoulder joint.

The particular accident which is the subject of this paper is an extensor paralysis of the distal phalanx of the thumb from spontaneous rupture of the tendon of the extensor pollicis longus. The affection is evidently rare, and the case which is herein described is the only one which has ever come under my observation, nor am I aware of any contributions to this subject in American literature. Most of the observations are of German origin, and more especially the medical reports of the German army for reasons which will be referred to later.

REPORT OF CASE

History.—The patient, a tailor, aged 31, devotes from ten to twelve hours each day to his occupation, and much of this time is spent in sewing with a coarse, heavy needle. In addition he also uses an iron in pressing clothes. He is very insistent that there was no warning pain or discomfort in the affected thumb previous to the onset of the paralysis, which occurred in the following manner:

Oct. 25, 1914, after a day's work, he was preparing to leave the shop, and inserted his right hand in the trousers pocket searching for some object, twisting and turning the hand about as one does when trying to explore its various angles and recesses. While doing this he was suddenly seized with a sharp and very severe pain over the posterior surface of the wrist on its radial side, and the back of the first metacarpal bone. On removing his hand from the pocket he was quite unable to extend the end phalanx of the thumb, while flexion could be readily performed. He had great pain over the dorsal surface of the hand and first metacarpal bone which continued for several days, and this region was very sore and sensitive to the touch for a fortnight. Since the accident he has been unable to use the needle and pursue his accustomed calling. In addition to pain and tenderness, there was also some swelling in the same region.

Examination.—Dec. 1, 1914, there was a complete isolated paralysis of the extensor of the end phalanx of the right thumb (Figs. 1 and 2). The patient could flex quite strongly this segment of the thumb, but there was not the slightest power of extension. In contrast to this, there was very fair ability to extend the basal phalanx of the thumb as well as the first metacarpal bone. All the other movements of the hand and fingers were perfectly normal in every way. The paralysis and disability were strictly limited to the distribution of the extensor pollicis longus muscle or, as it is sometimes termed in our anatomic nomenclature, the extensor secundi internodii pollicis.

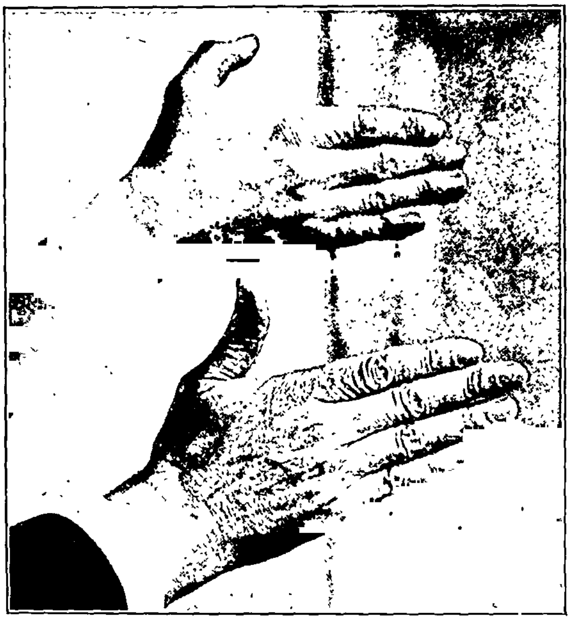

Fig. 1 (Case 1).—Rupture of the tendon of the extensor pollicis longus. Note the isolated extensor paralysis of the ungual phalanx of the thumb. Below is a normal hand showing the thumb in full extension.

When the tendons on the dorsal surface of the thumb were rendered prominent by strong extension, the normal prominence of the extensor pollicis longus was found to be absent. This tendon, as is well known, forms the ulnar border of that small triangular space which the early anatomists termed the snuff-box. The radial border of the so-called snuff-box or *tabatière* is formed by the tendons of the extensors of the basal phalanx and the metacarpal bone of the thumb, which emerge together in this region from a groove in the styloid process of the radius. The prominence of this tendon and the absence of the long extensor are well shown in Figure 2.

If the finger was drawn along the course of the long extensor of the thumb, there became palpable just below the posterior annular ligament a small, movable, rounded swelling which was still slightly sensitive to pressure. This nodule corresponds to the distal end of the ruptured tendon. The proximal end was not palpable.

Electrical examination failed to elicit any kind of response in the extensor pollicis longus muscle. Reactions of all the other muscles of the hand and forearm were normal. There were no reactions of degeneration. The sensations of the hand were normal, and a careful general neurologic examination showed normal pupillary, tendon and skin reflexes and normal musculature without evidences of atrophy or fibrillation. The urine was free from albumin and sugar, and the visceral examination was negative.

The man was told the nature of the lesion, and a suture of the severed tendon was recommended, but operative intervention was declined.

COMMENT

This peculiar type of paralysis has been well known to German military surgeons for a number of years, under the title of drummer's paralysis or drummer's tendon. In the medical reports of the Prussian army, extending from 1870 to 1904, von Wurthenau[1] collected sixty-two cases, all occurring in drummers. The condition is the result of a chronic tenosynovitis induced by a peculiar method of holding and using the left drumstick, which causes mechanical irritation of the long extensor tendon of the thumb as it emerges from its special compartment in the posterior annular ligament of the wrist. This in time causes pathologic alterations in the tendon and its sheath, and eventually rupture takes place, either during a paroxysm of drumming or more rarely quite spontaneously. It is said that the affection occurs usually in beginners and exclusively on the left side.

It may be assumed that the same mechanism and pathologic consequences were involved in the case of the tailor which is reported above. The fact that there was no warning pain has been observed in other cases and does not exclude previous weakening of the tendon at its site of rupture below the annular ligament.

In a few of the cases, microscopic studies of the diseased ends of the severed tendons have shown hyaline swelling, necrosis and separation of the tendon fibers.

The symptomatology is essentially the same in all of the cases, namely, a sudden paralysis of the ungual phalanx of the thumb which may or may not be preceded by pain or soreness along the course of the tendon. The actual rupture may occur quite painlessly; but more frequently a sharp, piercing pain is felt over the back of the wrist, often shooting up into the forearm. The tendon may be swollen and tender, and if ruptured, a tender, movable nodule is often palpable just below the annular ligament which corresponds to the distal stump of the severed tendon.

Electrical stimulation for obvious reasons is without visible effect on the special extensor movement which is lost. Although the muscle may respond, its contraction is not registered by an extension of the ungual phalanx, owing to the tendon separation. This fact is an important one, for if the paralysis were of neural origin, as is held by some writers, reactions of degeneration would be demonstrable.

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[1] Von Wurthenau: Beitrag zur Trommlerlähmung, Deutsch. mil.-arztl. Ztschr., 1899, xxvii, 554.

Another important diagnostic sign is the absence of the prominence of the extensor pollicis longus tendon which normally forms the ulnar border of the snuffbox (Fig. 2). All of the evidence tends to show that the usual seat of tendon rupture is just after its emergence from beneath the posterior annular ligament. This has been confirmed in a number of instances by operation, and the divided tendon found to be the seat of chronic inflammatory and degenerative changes. In addition to drummers, isolated instances of its occurrence in other occupations have also been recorded, namely, in a typesetter, a wood-carver, a farmer and in waiters.

In Duplay's[2] case, reported in 1876, which appears to be the earliest description of the condition, it had occurred in a cane-maker.

Of special interest are those traumatic cases in which rupture of the tendon has followed some weeks after fracture of the radius at the wrist, the tendon having suffered injury at the time of the accident, but rupture not taking place until after the fracture had healed and the function of the hand was restored. In other cases, rupture of the tendon has followed straining injuries, such as a backward fall on the hand.

The indications for treatment are very clear. If the condition is seen immediately after rupture has occurred, an effort may be made to effect union by fixation of the thumb. In older cases and when union does not take place promptly, the only chance of restoring function is by uniting the divided tendon by some method of suture. In some of the cases it has been impossible to bring the divided ends together because the distance separating them was so great. Under these circumstances the proximal end has been sutured to the tendon of the extensor carpi radialis (Duplay,[2] Schlatter[3] and Zur Verth[4]) or to the extensor indicis longus (Hager[5]).

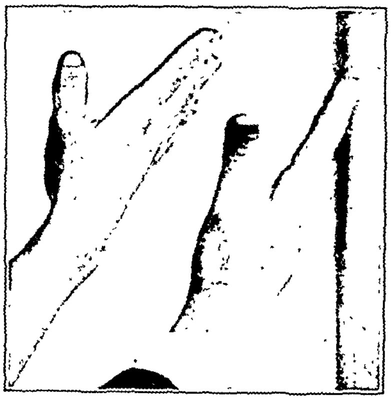

Fig. 2.—Extensor paralysis of the end phalanx of the thumb. Observe the absence at the wrist of its long extensor tendon, which forms the ulnar margin of the snuffbox. The tendon of the extensor brevis pollicis stands out prominently. Below is a normal hand for comparison.

For anatomic reasons, a better functional result would probably be obtained by suture to one of the tendons of the thumb, either the extensor ossis metacarpi pollicis or the extensor primi internodii pollicis.

It is of interest to add that in drummers, isolated paralysis of the flexor of the ungual phalanx may also occur, caused by paralysis of the function of the flexor longus pollicis. This occurs, however, much less frequently than the extensor type, and is attributed to a faulty method of hooking the end of the thumb over the end of the drumstick to prevent its slipping from the hand. It is like the extensor palsy, a tendon disease, a chronic tenosynovitis with consecutive fragilitas tendinum and rupture. In von Zander's[6] series, there were twenty-three cases of the extensor and only three of flexor palsy of the end phalanx of the thumb.

The reasons for excluding a neural origin of these extensor palsies of the thumb are: the acute onset of the paralysis and the associated symptoms of tenosynovitis below the posterior annular ligament; evidences of rupture of the tendon either by palpation of the nodular enlargement of the distal end or by actual demonstration at operation, and the total absence of electrical responses in the extensor pollicis longus, either normal or degenerative. An additional argument against the neural theory is to be found in the joint innervation of the extensor pollicis longus and extensor indicis from a single small branch of the posterior interosseous nerve, which would render isolated paralysis of the one without the other, on anatomic grounds, very improbable.

CONCLUSION

It may be said that the extensor paralysis of the end phalanx of the thumb is a very rare affection. It results from rupture of the tendon of the extensor pollicis longus as it emerges from beneath the posterior annular ligament of the wrist. Trauma and a variety of occupations have been found to be the cause of this accident, all of which have tended to induce low-grade inflammatory and degenerative changes in the tendon, which predisposes to spontaneous rupture. Drummers are especially liable to this affection; hence the term "drummer's palsy."

If evidences of union do not occur after a brief period of fixation of the part, function can be restored only by a tendon operation.

The term "drummer's palsy" is a poor one and is misleading, for the reason that the lesion is not neural and therefore not a true paralysis, nor is the condition one which is confined solely to drummers.

Therefore, if this term is used, it should be with the understanding that the affection is one of the tendon and not of the nerve.[7]

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[2] Duplay: Rupture sous-cutanée du tendon du long extenseur du pouce, au niveau de la tabatière anatomique, Bull. et Mém. de la Soc. de Chir. de Paris, 1876, ii, 788.

[3] Schlatter: Subkutane Sehnenzerreissung an den Fingern, Deutsch. Ztschr. f. Chir., 1907, xci, 317.

[4] Zur Verth: Ueber spontane Zerreissung der Sehne des langen Dammen streckers, Deutsch. Ztschr. f. Chir., 1909 cii, 569.

[5] Hager: Pathoge[illegible] ler spontanen Sehnen ruptur, Berl. klin. Wch[illegible]

[6] Von Zander: T[illegible]. Dissert., Berlin, 1891.

[7] In addition to the references already given, the following will be found of interest:

Bruns: Zur Pathologie der Trommlerlähmung, Neurol. Centralbl., 1891, p. 98; ibid., 1895, xiv, 897.

Cluzet and Nové-Josserand: Paralysie isolée du long extenseur du pouce, Nouv. iconog. de la Saltpétrière, 1913, xxvi, 234.

Düms: T[illegible] d. mil. Krankh., i, 210.

Henck: [illegible] Zentralbl. f. Chir., 1882, No. 18.

Heineke [illegible] en der Lehne des Extensor pollicis longus [illegible] utsch. Ztschr. f. Nervenheilk., 1913, xlvii, 229.

Lindner: Ueber Subcutane Zerreissung der Sehne des Extensor pollicis longus, München. med. Wchnschr., 1890, p. 753.

Schaefer: Ueber Arbeits Paresen, Inaug. Dissert., Berlin, 1890.

Steudel: Die Trommlersehne und ihre Behandlung, Deutsch. mil.-ärztl. Ztschr., 1899, xxviii, 554.

The Usefulness of Discarded Theories.—The advance of science is not comparable to the changes of a city where old edifices are pitilessly torn down to give place to new, but to the continuous evolution of zoologic types which develop ceaselessly and end by becoming unrecognizable to the common sight, but where an expert eye finds always traces of the prior work of the centuries past. One must not think then that the old-fashioned theories have been sterile and vain.—Edmund B. Wilson, *Science*.

HEREDITARY SYPHILIS

IN CONNECTION WITH CLINICAL PSYCHOLOGY AND PSYCHOPATHOLOGY *

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Fit morbus hereditarius et transit a patre ad filium
Paracelsus, 1529.

In relation to clinical psychology and its proximate interests, psychopathology, juvenile delinquency and even pedagogics (*Heilpädagogik*), the problem of congenital syphilis looms up with increasing importance as the results of recent studies are examined and older data pondered anew; for we find not only that syphilis in the ascendants may account for nervous and mental abnormalities covering the entire gamut of neuropsychic disturbance—from mere nervousness to complete idiocy—but also that timely and active treatment may improve or even cure[1] such neuropathy or mental enfeeblement, or arrest the progress of deterioration. The subject, besides, is rather singular inasmuch as the diagnosis is not easily inferred, the facts being purposely or not purposely withheld, or come upon by means of barest clews. With a little more knowledge of the effects of inherited lues, many a nervous symptom, neurosis and aberrant characteristic enigmatic before will have been explained.

Acquired syphilis in childhood is not common (occasionally contracted from a wetnurse), nor does its recognition usually present any difficulties. With congenital or hereditary lues, however, lies the rub. In the majority of cases the anamnesis leaves us in the dark, the mother having no knowledge of an infection or denying it or, again, remembering absolutely no occurrence of "secondary" luetic manifestations in the child.

To ferret out the facts one must question *both* parents, not only as to their knowledge of primary infection, but also as to occurring secondary symptoms, in which case one may sometimes elicit enough for a tentative diagnosis. Not infrequently, however, secondaries may be so mild as not to be noticed by the individual (Nonne[2]). A superficial (that is, rapidly carried out) examination of the parents may show some sign or stigma (of lues, or degeneracy) which may aid in our summing up, or even some stigma of congenital lues; that is, the mother of the child in question may herself have been congenitally luetic and have passed the infection to her offspring—*congenital syphilis in the third generation.* And if she shows no stigmata (she will in all probability have no knowledge of her condition), the problem of detection becomes even more difficult. But, one will ask, did not the child itself show signs of secondaries at birth or in very early infancy? These may also have been so mild as to be overlooked—or possibly there were none (the still undecided problem of "late congenital lues").

In approaching our subject, let us first examine the factor of heredity itself in this connection: How does syphilis in one or both parents[3] affect their offspring?

A. The organism of the disease, *Treponema pallidum,* may be transmitted to the embryo, which is then also syphilitic — the organism circulating in its blood. The morbid products or toxins of this organism have an *inhibiting* potency, and the evolution of the embryo or fetus, if the germ plasma itself continues to unfold, may come to various incomplete issues, that is, (*a*) it may cease developing and be extruded (abortion); or (*b*) the fruit grows, but is born before the normal expiration of intra-uterine life (premature birth), in which case it is immature, frail, below weight, possibly marasmic—and hence more vulnerable to disease. This premature child may die directly after birth, or soon thereafter; (*c*) the fruit may develop for a time, or even to term, and be born dead (stillbirth). Hence the frequent history from luetic mothers as to sterility, abortions, stillbirths, premature children, children dying soon after birth; and hence the importance of inquiring if this was the case, in taking an anamnesis. On the other hand, such a mother *may* bear several children without having had abortions, etc., who remain alive, and with but few or mild symptoms. In a case noted by Milian, such a patient had six living children, though she was luetic.

A study of Nonne's material,[4] for instance, showed the following: Ninety syphilitic families were examined; eight remained sterile. In the remaining 82 families, 350 pregnancies occurred. Ninety-one, or 26 per cent., ended in abortions, 10, or 2.9 per cent., in stillbirths, 66, or 18.8 per cent., died small, 183, or 52.3 per cent., remained alive. Of the latter, only 119 were examined. Thirty-six were found normal, 83 pathologic. Expressed in other words, 47.7 per cent. of the fruits of the syphilitic parents died or were extruded before term. Only 52.3 per cent. remained alive, and one could reckon that of these, 35.8 per cent. were pathologic. If but one parent was diseased, there was a child mortality of only 37 per cent.; if both were diseased or gave a positive Wassermann reaction, between 47 and 53 per cent. In eighteen families, A. Fournier counted 161 pregnancies of which 137, or 85 per cent., were stillbirths. J. N. Hyde[5] found that 116 out of 121 syphilitic infants died in the first year, etc. Hochsinger himself speaks of 67 families in which there *were 266 pregnancies, of which only 142 came to term, but 76 infants died within the first days; 124 were premature* and dead. Lesser[6] examined 89 children (of 35 families), of whom 32, or 33 per cent., were well, 57, or 66 per cent., were syphilitic. Of these, 29 had signs of congenital lues.

Again, (*d*) the child may be born at term and show signs of syphilis and nevertheless live on. These signs may be few and not very distinct, may be transient, or may flourish. They are the so-called "secondaries." Or (*e*) there are no signs whatsoever at birth, in spite of obtaining syphilis, the "secondaries" breaking out a few weeks later. Or (*f*) there is nothing present for weeks, months or years, the disease being latent, and becoming manifest only after from eight to twenty-eight years[7] in the form of "tertiary" lues (so-called "syphilis hereditaria tarda," or late hereditary syphilis, or *tertiarisme d'emblée*).

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* Lecture in the course on clinical psychology at the College of Physicians and Surgeons, Columbia University.

[1] Oppenheim, H.: Lehrbuch, Ed. 6, ii, 1281. Ziehen also states that he saw the intelligence defect of a 13-year old feeble-minded girl entirely clear up on energetic antiluetic treatment.

[2] Nonne, M.: Syphilis und Nervensystem, Karger, Berlin, 1909, p. 546.

[3] There is still an unsettled controversy as to whether there can be a paternal hereditary syphilis, that is, whether the spermatozoa can pass the syphilitic organism to the embryo, the mother remaining free from disease, or getting it from the paternally infected embryo (or her acquiring an immunity through the carrying of such an infected fruit); or whether the husband must first infect the wife, who then through the placenta, passes it on to the *embryo.* The latter is probably more widely believed than the former. For our own problem this is of little moment. See Deutsche medizinische Wochenschrift, 1914, Nos. 15, 24 and 25.

[4] Raven: Serologische und Klinische Untersuchungen bei Syphilitiker-Familien, Deutsch. Ztschr. f. Nervenheilk., 1914, li, (Sonderabdruck, Vogel, Leipzig).

[5] Hyde, J. N.: Quoted by Hochsinger: Die Gesundheitlichen Lebensschicksale erbsyphilitischer Kinder, Wien, klin. Wchnschr., 1910, *Nos.* 24 and 25. See also his article on Syphilis in Pfaundler and Schlossmann's Handbuch der Kinderheilkunde, i, Part 2.

[6] Lesser: Verein f. inner. Med. u. Kinderheilk., Berlin, Feb. 9, 1914; Ref. in Deutsch. med. Wchnschr., April, 1914.

That tertiary symptoms occur similar to such in the adult without the earlier appearance of "secondaries" still remains a much mooted question. So only recently Finkelstein[8] again challenged the theory and said he believed that the "secondaries" in such a case either had occurred *in utero*, or appeared after birth but were of so slight a nature as to be overlooked (a few spots on the soles and nothing more, or a slight induration of the soles, of a fleeting nature, or a light anemic yellow discoloration of the skin, or on near examination a very slightly enlarged spleen, or an enlarged and sensitive cubital gland. These may even first be seen in the fifth or sixth month, etc.) This has no very great importance for us, however, who are to remember that whether there be a real syphilis hereditaria tarda or whether this is only an "overlooked" syphilis (syphilis occulta), the abnormality of the patient before us may be due to lues even if there be no history of "secondaries."[9]

B. There is a second way in which syphilis of the parents affects their offspring. Such parents are themselves constitutionally affected by the disease, and hence the germ cells uniting to form the embryo may *also, one or both, be affected, depleted or invalidated,* just how cannot be said; possibly it is a molecular disturbance, possibly chemical through the poisonous metabolism of the treponeme itself; possibly it is but a condition of very low vitality, a marasmoid state. Howsoever this may be, the fact remains that this embryo, without containing the infective organism itself, enters from the start on a darkly checkered career whose fate may be almost as sinister as that of the really infected embryo. Here the development may also be inhibited or retarded; or the fetus may not develop to term;[10] or be born prematurely, or with deformities, dystrophies, aplasias, etc.: or the child at term is marasmic, puny, weak and miserable.[11] For us it is especially to be borne in mind that in the general invalidation of such an individual, the nervous system bears its share, at times the very brunt of the defect. Besides, its lack of resistance makes it prone to further injury. This, then, is the effect of germ damage, not germ infection. Such children will give no Wassermann reaction. They are not syphilitic but neuropathically or psychopathically constituted or marred. No doubt both facts *A* and *B* may at times be combined. Strictly speaking one might call the cases of germ damage as the really hereditary, and of germ infection as the congenital. In the former, nothing can be accomplished by specific treatment. What a problem this for the sociologist and the eugenic enthusiast!

But a third possibility must be borne in mind, *namely, C, that such parents may have an entirely healthy child and one that remains so.*[12] Such parents may have several children, some of whom are affected, some remaining normal. A normal child may follow a diseased one, and such may again be followed by one with syphilis. No rule whatsoever is observed here.[13]

Not irrelevant in this connection are some recent observations by Nonne and his assistants (see articles of Hauptmann[14] and Raven[4]). It would appear (though it has not yet been definitely established), that the disease condition in the children surviving in syphilitic families is the less severe the more intense the disease was in the parents, as if the virulence of the disease becomes more "attenuated" in the offspring, the more severe or outspread was its passage through the parent. This study leads one also to believe that in families in which one parent remained free (chiefly the wife in Nonne's series), the greatest percentage of affected children occurred, in which case the prognosis was better for the offspring, should it survive, if both, rather than one parent, were affected. This, too, however, Raven points out must still be substantiated in the material of others, as it is not in accord with former findings. More conclusive is the observation that the augury is much graver for the offspring when not the father but the mother is diseased. Fifty-two *syphilitic men occasioned* 154 pregnancies, of which only one-half matured or remained alive. In twenty cases of maternal syphilis there were seventy-four pregnancies, of which only a fifth came to term and remained alive. A. Fournier also found that in purely maternal syphilis, 84 per cent. of the offspring were affected; in paternal syphilis, 37 per cent.

We keep in mind, then, the possibility of children who are actually syphilitic, such who were germinally affected but not infected, and who now present abnormalities, that is, psychopathic divergencies (but no syphilis), and finally such as may be entirely normal, or again only apparently normal, the abnormality to break out later. *These facts necessitate our remembering,* in taking the anamnesis of any child, that we must inquire carefully about the condition of other children in the family, for another child may give the clue of a syphilis that otherwise would never be dreamed of.

For instance, a little patient is brought because of headache and fatigue; the mother knows nothing of syphilis—does not know what it is. The child shows no signs of any kind. Syphilis would scarcely occur to one's mind. A brother has epilepsy and enuresis, and is slightly debile. Even that scarcely points to a specific disease, though it brings up the possibility. But a third child has an interstitial keratitis. That makes one take a Wassermann reaction.

Let us now see what the condition may be both in the patient and in the parents of the patient, and in what way the interrogation and examination of the latter may put us on the scent of lues in the child, or help in clearing up the doubt when we suspect it but find no signs: We may get a history, in the parents, of a primary infection. But the father may deny it and the mother in a large percentage of cases is frequent coexistence of rickets, however, should be kept in mind, and rickety "bosses" not mistaken for luetic changes. One must also recollect the possibility of hydrocephalus. sometimes found, one of the effects of lues.

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[7] Oppenheim (Lehrbuch, Ed. 6) states that such may break out *even in the third or fourth decennium. Fournier gives the possible* limits as from 3 to 28, but 12 as the maximum. Rable found the first symptoms to appear between 17 and 18. The greater number of cases seem to occur between the twelfth and fourteenth years.

[8] Finkelstein: Deutsch. med. Wchnschr., June 25, 1914, p. 1346.

[9] See Case 1 at end.

[10] We see the same in chronic alcoholism; that is, alcohol acts similarly to the poison of *syphilis*; so does lead; and women chronically poisoned by alcohol, syphilis or lead, all abort or miscarry, etc., and there is a high mortality among their offspring. See Sullivan's study of the children of female drunkards in the Liverpool prisons (Med. Temper. Rev., iii, 4).

[11] Many syphilitic children go to pieces on tuberculosis. In Hochsinger's series, 80 per cent. of the deaths occurring after the second year were due to tuberculosis. Rickets also occurs often in these children, more frequently than in non-syphilitic. All this refers to both Groups A and B.

[12] It must therefore be remembered by the pediatrician that a wet-nurse may have a healthy child and yet be luetic.

[13] Kassowitz, however, pointed out that in general the results are severer at first and less severe as one gets further from the infection—first abortion, then stillbirth, then living child, etc. But there may be exceptions. Nonne also found that the first and second and still the third children were more severely affected than later ones.

[14] Hauptmann: *Ztschr. f. d. ges. Neurol. u. Psychiat.*, viii, No. 1.

Thus far enumerated, the signs when present are easily seen and determined without specialized investigation. Nasal and ophthalmoscopic examination, however, may give valuable, if not (as in the latter case) convincing data. The nose may show signs of gummatous destruction of bones and cartilages (hence the "saddle nose") or septum perforation. Or the soft palate may be ulcerated or even perforated. It has also been pointed out (a fact which, however, helps us nowise in diagnosis), that luetic children frequently have adenoid growths in the nasopharynx, and because of this, enlarged cervical and submaxillary glands. Parenthetically it may here be mentioned, however, that cubital glands, when present on both sides, are mostly syphilitic and of considerable diagnositic value. They may be found at any age up to puberty. In infancy, Götzky[36] considers them almost pathognomonic of syphilis, and in older children decidedly suspicious. At times it may be the only clinical sign of latent lues. Unilateral cubital swelling is mostly not syphilitic. Normally these glands are not felt.

The ophthalmoscope may show pigment deposits in the choroid, rather conclusive evidence of a former syphilitic choroiditis or chorioretinitis,[37] or changes in the retina itself. The iris may show abnormalities, and synechia may be present. Even an optic neuritis may be found. Nor must one forget the possibility of an Argyll Robertson pupil.[38] The vestiges of an old keratitis or one still active may be seen, and this also is of great diagnostic importance.

Before terminating this chapter of signs and stigmata, let me refer to the enlarged spleen, often associated with enlarged liver, frequently found, and finally to the possibility of infantile cerebral paralysis luetic in origin.

The last-named fact is to my mind an important one and ought to be thought of. It is certainly neglected in our textbooks. Fournier found lues in the heredity of nearly all these cases; so did Althaus (cited by Nonne). Of late Bing[39] and Peritz[35] likewise put great stress on syphilis as the possible etiologic factor. Oppenheim[40] also states that hereditary syphilis appears not infrequently to be the cause of this condition. Other writers, however, have not thought that it plays much if any part. But let us consider the following: There are ever so many difficult and protracted, even instrumental labors, and yet in comparison but few cases of infantile cerebral paralysis. Here we must think of some predisposing factor. Again Littel and others noted that ever so many of these cases occurred in premature infants. We can understand how a trauma through pressure or pulling can cause meningeal (venous) hemorrhage, but how is such hemorrhage explained by the easy delivery of a premature infant? (Beside, enough cases occur in which no satisfactory cause whatsoever can be given.) Ziehen[41] mentions the fact that small bleedings may occur, and evidently do, without giving any symptoms, and may occur at times even in normal births. He cites Weyhe as having found such bleeding 122 times in 959 necropsies on infants. In twenty-three of these, lues was present. In the best chapter on the subject that I know of, Heubner[42] analyzes this matter, and also concludes that Littel's etiology is acceptable only in a minimum number of cases and only as a helping or accessory factor. He states that the necropsy studies showed more and more that the brain aplasia when found was not due to meningeal hemorrhage but to simple inhibition of development, and he holds with Ganghofner that the condition is a sign of a certain degenerative condition of the mother. Very interesting also are the findings of Ranke,[43] who noted that the brains of newly born luetic infants gave evidence of considerable structural changes, especially localized about the blood vessels, and which lead to meningo-encephalitic processes. In these foci he found the treponeme. His most important statement, however, is that in these brains, bleeding occurred very easily. If one bears these facts in mind, and also that prematurity, so frequently given as the etiologic moment, is also one of the most frequent accidents in syphilis, and that likewise an endarteritis obtains often in young syphilitic infants, and may evidence itself as an acute cerebral children's paralysis[44] the luetic etiology (hemorrhage due to luetic arteries, or a meningo-encephalitis or mere aplasia due to inhibition of development) of at least a considerable percentage of these cases must appear to us obvious and acceptable.[45]

Not to be confused with luetic stigmata are the stigmata of degeneracy, which are frequently found in congenitally luetic individuals, but indicate hereditary degeneration, or at least are signs pointing to hereditary degeneration or germ damage, but not to syphilis. Where such germ plasm has been vitiated, the individual resulting from it may show the invalidation of the stuff he is made of in both mental and physical abnormalities; these abnormalities are the tags of his inherited taint or defectivity—hence stigmata degenerationis. There are both psychic and somatic stigmata; they may be found in psychotic individuals, idiots, imbeciles, psychopathic constitutions, etc. They have nothing specifically to do with syphilis (and must not be mixed in with luetic stigmata as some writers do) though syphilis may be one of the causes of inherited degeneracy.

Much has been argued about the diagnostic value of these somatic stigmata. Their presence is no index of the amount of inherited psychopathy, for but few may be present in an individual showing severe psychic degeneracy, while at times, on the other hand, one or more may be encountered in the normal individual. On the whole, however, one may see in them with Ziehen,[46] when several are present, decided diagnostic intimation of inherited defect.

These stigmata are, for instance, abnormalities of the skull, of teeth, gums and palate, of the external ear, of the hands (webbed fingers or polydactylia, etc.), asymmetries, abnormal hair growth (as across the nose bridge, irregularly into the forehead, especially a double hair spiral), abnormal pigmentation of the iris, abnormalities of the genitals, etc. Possibly left-handedness may be added here, also an abnormally small head,[47] etc.; sometimes even a single stigma may be most meaningful, as the double hair spiral.[48]

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[36] Götzky: Klinische Bedeutung der Kubitaldruesen-Schwellungen, Ztschr. f. Kinderheilk., 1913, vii, 113.

[37] Cases have been described in which the luetic abnormalities in a child were so mild and atypical, with no patent physiologic signs, that no diagnosis was made until by chance the ophthalmoscope showed this choroid pigmentation.

[38] Oppenheim (Lehrbuch, Ed. 6, Part 2, p. 1281) states that an ophthalmoplegia interna or even just an Argyll Robertson pupil may be the only sign of disease of the nervous system in hereditary lues.

[39] Bing: Lehrbuch der Nervenkrankheiten.

[40] Oppenheim: Lehrbuch, Ed. 6.

[41] Ziehen: Nervenkrankheiten im Kindesalter, p. 561.

[42] Heubner: Lehrbuch, ii, 145, et seq.

[43] Ranke: Ztschr. f. d. Erforsch. d. jug. Schwach., 1908, ii, No. 2.

[44] Heubner: Lehrbuch, i, 653.

[45] Findlay and Robertson (Glasgow Med. Jour., lxxxii, No. 6, p. 408) state that, as evidenced with the Wassermann reaction about 45 per cent., of cases of spastic diplegia seem to be due to congenital syphilis.

[46] Ziehen: Die Geisteskrankheiten des Kindesalters, No. 3, p. 31.

[47] Möbius: Ueber Entartung, Wiesbaden, 1900, p. 113.

Finally a word as to the Wassermann reaction in these cases. No very great amount of work has been done along this line of study, yet enough to give us some valuable information. As to the Wassermann reaction itself, it should be remembered that this is characteristic but not in the strictest sense specific of syphilis. It is occasionally also found in malaria and certain stages of scarlet fever and often in leprosy. Nonne[49] believes that rarely and exceptionally it is found in multiple sclerosis. A negative Wassermann reaction means nothing, just as a positive Wassermann reaction does not mean syphilitic disease, for it may occur in a person who once had lues but is now free of subjective or objective signs of disease, that is, is well.[49] A positive Wassermann reaction means that an individual once was luetic, or that treponemes are still present.[50]

Raven[4] found in 119 children examined of syphilitic parents, 36 to be entirely well, 83 pathologic. Of these 83, only 27 gave a plus Wassermann reaction. Fourteen had it alone, without signs or symptoms, 13 had a plus Wassermann reaction, plus stigmata (of lues or degeneracy).

R. Müller[50] found that late congenitally luetic children all gave a plus Wassermann reaction, if clinical signs were present.

H. Boas[51] has the most interesting monograph on the subject. He cites several authors as having found children of syphilitic mothers who at birth gave no positive reaction but later showed syphilis. With Thomson, Boas examined 88 children of luetic mothers at birth; 31 gave a plus Wassermann reaction. In four the reaction very soon disappeared entirely, nor did they as long as observed (from three to nine weeks) develop syphilis. The remaining 27 had luetic manifestations at birth or got them before the third month at the latest, or died and showed luetic changes. Of the 57 who showed no Wassermann reaction, 42 remained well (during their observation of three months), 13 later developed luetic manifestations and gave a plus Wassermann reaction. In one the reaction was positive two and one-half months before symptoms appeared. Two died without having any plus Wassermann reaction or symptoms. Yet their organs at necropsy showed syphilitic changes.

Of fifty-four older children or adults up to 40 years with manifest late congenital lues, all reacted positively (fifty-three other children up to the age of 1 year with manifest symptoms, also all gave a positive Wassermann reaction). Hence Boas concludes that if a child has symptoms which appear to be luetic (congenitally) and the reaction is negative, then very probably they are not luetic.

Veeder and Jeans[52] also found a plus Wassermann reaction in all their cases in which lesions were present, and say: "We are inclined to be skeptical about the diagnosis of late syphilis in an untreated patient who has a negative Wassermann reaction. A positive Wassermann reaction may be the only symptom of syphilis for many months or years," etc.[53]

But how about the latent cases, in which there are no lesions present, and the patients later may come down with a mental degeneration, etc.? I have not seen any statistics of such cases, and it can well be understood why one does not make tests on children who show nothing or very little. Yet it is just to these children who show so very little that I mean to call attention in this article and to point out the importance of looking for lues. Veeder and Jeans, for instance, tested three cases with indefinite and obscure pains and found a positive Wassermann reaction. The Roentgen rays have at times shown up luetic bone changes where none were surmised (Dingelmann and Schmetz, also Götzky). The testing of brothers or sisters of children who, for instance, had a keratitis, showed a plus Wassermann reaction when there were absolutely no signs or symptoms. Careful, in fact the most careful history taking is necessary, with all our alertness and sharpness set into activity; and with the aid of the Wassermann (and possibly luetin[54]) test we shall discover a very large number of congenitally luetic whom we never suspected before.

REPORT OF CASES

Case 1.—M. X., girl, aged 9, at present a generally high-strung alert, sensitive, somewhat restless child, is timid, but has no complaints. Birth was difficult, very slightly before normal end of term; she was cyanotic, and had to be resuscitated, but showed no abnormal signs or symptoms, though weighing six pounds. During the first year of her life she showed no abnormalities, save that she sighed constantly. At the age of 6 she had her first manifestation of chorea, which began with her attending school. This persisted three years (up to the time of coming under my treatment), at times very mild and at others extremely severe. It would be brought out even on a little excitement. During this entire period she would complain of occasional dizziness, "as if her head were going round." Four years ago she began to have difficulty in hearing, which was at first quite extreme, but gradually grew better, and is now normal. For a year she has had frontal headaches, especially on getting up in the morning. Physical examination shows no stigmata, save a mild scaphoid scapula. In the recumbent position a soft systolic murmur is heard at the apex. Mental examination is normal. When the patient was seen a year ago, the Wassermann reaction was positive (at present negative). The mother of the child has had tertiary manifestations for five years. The Wassermann reaction was at first positive but now is negative. The father died of nephritis (apparently syphilitic). The child's chorea disappeared very soon on antiluetic treatment. Several physicians must have seen this child (who was always with her mother) while the mother was being treated for syphilis, yet not one thought of diagnosing syphilis in her, or giving her antiluetic treatment; nor did the treatment she had received for her chorea seem to help her in the least.

Case 2.—The father of the child was infected three years before marriage; he was treated for neurasthenic headache and cerebral fatigue. He married after several antiluetic "cures." The wife aborted three times, then remained sterile for four years, and finally bore the present patient, who is now 7 years of age; he developed physically and mentally normal, save that learning was very laborious for him, as he could only with difficulty fix his attention. The child was very active, and easily frightened; was a restless sleeper and ate poorly. At the age of 6 he acquired chorea, which would not improve under arsenic, but did rapidly under the administration of potassium iodid, as did also his remaining symptoms.[55]

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[48] I have been on the lookout for this stigma ever since Ziehen personally pointed it out to me. Wherever I have found it, even if it was the only stigma present, the individual was strongly psychopathic.

[49] Nonne, M.: Der heutige Standpunkt der Lehre von der Bedeutung der "Vier Reactionen" für die Diagnose und Differentialdiagnose organischer Nervenkrankheiten, Deutsch. Ztschr. f. Nervenheilk., 1911, xlii, 206, etc.

[50] Müller, R.: Versamml. deutsch. Naturforsch. und Aerzte, Sept. 21-27, 1913; ref. in Deutsch. med. Wchnschr., 1913, No. 45, p. 2229.

[51] Boas, H.: Die Wassermann'sche Reaktion, Karger, Berlin, 1914.

[52] Veeder, B. S., and Jeans, P. C.: The Diagnosis and Treatment of " Hereditary Syphilis, Am. Jour. Dis. Child., October, 1914, p. 283.

[53] Veeder and Jeans also report a case (p. 291) which shows that a negative reaction cannot be regarded as showing that the case is cured or quiescent.

[54] S. Cannata (Pediatria, xxii, No. 7) states that the luetin reaction is specific for syphilis. The test is not always positive in congenital lues, but nevertheless gives better results than the Wassermann reaction

Case 3.—The father of the patient at the age of 20 was luetically infected. He received several inunction treatments. He died soon after 40 of paresis. The mother, apparently, as is alleged, is entirely well. After one abortion she had four children, of which the first died soon after birth. The other three children (two sons and one daughter) developed physically entirely normally. The eldest of these, however (son) remained behind mentally, and finally had to be given over to an institute for feeble-minded children. The second child (daughter) became chlorotic at puberty. She suffers now from insomnia, nervous tachycardia, and extreme fatigue on bodily and mental exertion. The youngest child (son), who is mentally rather exceptionally developed, suffered since his seventeenth year from habitual headaches, migraine attacks and insomnia. Now, in his twenty-first year, as he was preparing for examination to the bar, he came down with an outspoken neurasthenia. From the report of the family physician, it is learned that this boy, when he was 1 year old, had a periosteal disease of the left tibia, which cleared up on antiluetic treatment.[56]

Case 4.—The mother was strong and healthy. The father was infected eight years previously and was now showing the first signs of tabes. The child, boy, aged 3 years, was mentally alert and physically normal. He was unusually irritable and unsteady. He slept very restlessly, falling asleep only long after midnight—and then awakening again to remain awake for hours. Occasionally also he walked in his sleep. Hydrotherapy, sedatives, change of climate, etc., did not help, but potassium iodid began to improve the condition, which has steadily (after three years) become about normal.[57]

Case 5.—Boy, aged 4 years, was brought to Nonne because he slept restlessly at night and had attacks of fear. The child showed nothing on examination, no signs of rickets, degeneration or lues. History of the father showed syphilis in the latter, ten years previously. Sedatives and tonics gave no relief. Under potassium iodid treatment the immediate improvement was striking.[57]

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STUDY OF A RECENT TYPHOID EPIDEMIC WITH ESPECIAL REFERENCE TO THE USE OF ANTITYPHOID VACCINES

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In spite of the wealth of statistics collected from such reliable sources as the European and United States army reports, considerable difference of opinion exists as to the advisability of giving antityphoid vaccine to persons presumably infected. Wright[1] in his earlier communications emphasized a negative phase directly following administration of vaccines, and advised against their use in the presence of an epidemic. Leishman[2] and others are not positive of the existence of a negative phase and Russell[3] in a recent article insists that a negative phase does not exist. He notes, however, that a single injection of vaccine confers little or no immunity to typhoid fever.

A recent epidemic of typhoid fever at the St. Louis City Hospital offered us further opportunity for study along these lines.

There are, exclusive of patients, about 400 people in the personnel of City Hospital. This epidemic was traced to the kitchen and dining rooms where employees, nurses and doctors were served, so that probably 250 persons were exposed to infection. The total number of cases of typhoid was forty-three, or the percentage one would expect under such circumstances.[4]

Twenty-three cases developed among those who had received no vaccine. The average duration of the disease in these patients was a little under six weeks. There were no very severe cases and no deaths in this series. These cases may, therefore, be considered rather mild.

Twenty patients received one or more doses of vaccine. A summary of these cases may prove of interest.

Dr. A. received three injections of vaccine two years ago. The usual technic of giving 500,000,000, 1,000,000,000 and 1,000,000,000 dead bacilli at intervals of about ten days I presume was followed. The disease in him ran a very mild course. He left the hospital at the end of seventeen days.

Miss H. had three injections, the last on September 13. Her temperature ranged from 99 to 101 for four days beginning September 14. Such a temperature might be expected from a moderate reaction. A few rose spots were in evidence on September 17. Stool cultures, however, contained typhoid bacilli, and up to November 1, the organisms were still present.

Miss J. had three injections of vaccine, the last on August 28. At the time the last injection was given, she complained of headache and malaise. She had a moderate reaction following this injection. She had not recovered, September 2, and was sent to the ward. A blood culture taken the following day contained typhoid bacilli. The stool culture was also positive, as was the Widal reaction. The course of the disease was rather mild at first, but later the patient became very ill. She was discharged October 26.

Miss M. had one injection on August 31, with little discomfort. On September 9, she received a second injection. She had a moderate reaction from which she did not recover and was sent to the ward September 14. The diagnosis of typhoid was confirmed by laboratory findings during the following week. The disease ran a mild course and patient was discharged October 8.

D. S. A. had his second injection on September 8. He did not recover from the reaction, and was sent to the ward, September 14, with a diagnosis of typhoid. The disease in this case was moderately severe. He was discharged October 18.

In E. K., the disease ran a similar course to the preceding following his second injection on September 8. He was discharged October 22. These patients were both well when the second dose of vaccine was given.

Dr. B. had a severe reaction following his first injection on August 27. He had a severe cold at the time, to which his symptoms were in part attributed. On September 3, rose spots appeared and he was sent to the ward. On September 6 he was given a second injection without increasing the severity of his symptoms. His course was of average severity for three weeks, the fever then subsided and reached normal, where it remained for two days. He then suffered a relapse. He was discharged October 23.

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55. Nonne's Case 388, Syphilis und Nervensystem, Berlin, 1909.

56. Case of Binswanger's (see his Neurasthenie, Jena, 1896, pp. 55-56).

57. Nonne: Syphilis und Nervensystem, Berlin, 1909, p. 558.

1. Wright, A. E.: On the Results Which Have Been Obtained by Anti-Typhoid Inoculation, Lancet, London, Sept. 6, 1902, p. 654.

2. Leishman, quoted by Russell, F. F.: Antityphoid Vaccination, Am. Jour. Med. Sc., December, 1913, p. 803.

3. Russell, F. F.: Am. Jour. Med. Sc., December, 1913.

4. Two patients developed typhoid in the hospital during August and September. One, a fracture case, convalesced, and the other, a patient with tertiary syphilis, died in the third week. The necropsy protocol stated that death in this last case was due to acute endocarditis and bronchopneumonia, but typhoid ulcers were found in the intestine. These patients were widely separated, and as the infection could not be traced to the same source as the others of this series, they are not included. Neither of these patients received any vaccine.

Dr. S. gave a history of an illness resembling typhoid ten years ago, but decided to take vaccine. He had a moderate reaction following his first injection on September 15. He was at the infirmary at the time, but was sent to the hospital on September 26 with a mild case of typhoid. He was discharged October 19.

Miss M. S. had a moderate reaction following the first injection, but recovered in two days. After the second injection, September 12, she continued to have elevation of temperature and was sent to the ward September 17 with the diagnosis of typhoid fever. She is at present convalescing.

Dr. I. was on vacation from August 16 to September 8 in a locality where there were no known cases of typhoid. On September 10 he took his first injection of vaccine. The reaction was comparatively mild, but elevation of temperature persisted and the case was diagnosed as of typhoid on September 15. The disease ran a severe course with two relapses. He was convalescing at the time this paper was written.

Miss F. M. received one dose of vaccine on September 3. She had a mild reaction lasting two days. She was well for two weeks then had a mild attack of typhoid lasting about seventeen days.

Miss R. received one injection of vaccine on September 3. She had a mild reaction but the temperature ranged between 99 and 101 for five weeks. The Widal reaction as well as blood and stool cultures were negative and she did not develop rose spots. As a positive diagnosis of typhoid could not be made, she is not included in the series.

The remaining nine patients each received one dose of vaccine. All had moderate reactions, which terminated without remission in typhoid. All were of moderate severity, but all recovered.

There was apparently little difference in the severity of the disease in those who received vaccine and in those who did not. Complications were rare, consisting of a few small hemorrhages. There were furuncles in three cases, phlebitis in one case and pyelitis in two cases. Relapse was common, but not severe; five patients in all had temperature above 100 after having been normal for two or more days. Among the nurses and physicians who were directly under my care, rose spots were very pronounced in every case, and four cases developed two or three crops.

Of those who did not develop typhoid, 261 received one or more doses of vaccine, 136, two or more, 14, three doses and 8 had been immunized before August, 1914. The vaccine used was made by Parke, Davis & Co., and consisted of a suspension of dead typhoid bacilli which had been grown on agar slants in a normal salt solution containing 0.5 per cent. of trikresol. This vaccine resembles that used in the United States Army.

It will be noted that practically all vaccine was given between August 28 and September 14, or during the time when all of the cases of typhoid developed. The fact that only 20 of the 261 who received the vaccine developed typhoid speaks against any marked increase of susceptibility and the fact that 20 did develop typhoid is against any marked increase of resistance following recently given vaccine.

The appearance of symptoms directly following injections in so many cases may be explained in at least two ways. These patients were either well along in the stage of incubation when the injections were given, and therefore the vaccination was only an incident which caused them to be watched more closely, or the vaccine, acting as many other foreign substances do, temporarily lowered their resistance and thus precipitated the onset of the disease.

If the latter idea be accepted, it is possible to conceive of a few who, had it not been for this temporary lowering of resistance, might have overcome the infection.

CONCLUSIONS

The use of antityphoid vaccine in persons who are harboring typhoid bacilli does not increase the number of those who develop typhoid.

A single injection, or more, directly preceding or during the incubation period of the disease, does not render the individual immune.

The course of the disease does not seem to be modified by injections of vaccine directly preceding the onset in those who develop typhoid.

The advisability of giving antityphoid vaccine to those presumably infected seems questionable and may in a few instances precipitate an attack.

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CLINICAL OBSERVATIONS ON ASIATIC CHOLERA IN MANILA IN 1914*

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After an absence of four months, cholera appeared in the city of Manila in July, 1914. The present epidemic, in which there were reported more than 1,100 cases, suspects and "carriers," did not differ greatly from the ordinary small epidemic. All patients, excepting those who died without medical attention, were treated at San Lazaro Hospital.

Of the number mentioned, 330 were genuine cases of cholera, 170 not cholera, and 570 were carriers, so-called; 99 were found dead and sent to San Lazaro morgue for confirmation of diagnosis. The total number of deaths with and without medical attention was 190.

The percentage of recoveries among those receiving medical attention at San Lazaro was 72.5.

When a patient is admitted to the hospital, a stool specimen is at once taken and sent to the Bureau of Science for bacteriologic examination, and no patient is discharged until at least two successive stool specimens taken on different days are reported negative for cholera vibrio.

When a case is beyond doubt clinically cholera, it is carried on the hospital records as cholera, and a case pronounced cholera at necropsy is taken up as such. When a case is merely possible or even probable cholera, either clinically or at necropsy, the final diagnosis depends entirely on the laboratory findings, so that there is little chance for error in the ultimate status of a case. The clinical diagnosis of Asiatic cholera was confirmed bacteriologically in 85 per cent. of the cases.

In reviewing the literature of cholera outbreaks, one notes in almost every epidemic the virulence or violence of the individual infections gradually decreasing as the epidemic lessens. In the present epidemic, it is rather suggestive that although the first few patients were violently ill, the decline in the virulence did not follow in the usual manner, it being the rule that for every group of extremely ill patients, there followed immediately a group of less ill patients and then a few who developed but one or two mild symptoms of the disease. This cycle repeated itself throughout the epidemic in too regular a manner to be disregarded. Had these groups of patients come from single neighborhoods, one would at once interpret the sporadic outbreaks as from single sources of infection. This relation of cases, however, could not be determined save in a few instances.

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* Read before the Annual Meeting of the Philippine Islands Medical Association, Manila, Nov. 5, 1914.

Of the 330 patients treated, 56 per cent. were violently ill on admission to the hospital and demanded emergency treatment. Five per cent. became worse within a few hours after admission and were given emergency treatment. Sixty-one per cent., then, of all patients admitted were extremely ill; the remaining patients, either because of mild infection or the supportive treatment, failed to become very sick.

The diagnosis in most cases presented no difficulty, the symptom-complex of otherwise unexplained diarrhea and vomiting, cramps in the skeletal muscles and suppression of urine being accepted as sufficient for isolation in quarantine.

The clinical diagnosis in children was much more difficult, no reliable history being obtainable and the symptoms being frequently atypical. It was found after carefully examining a number of patients that practically all acutely ill cholera patients slept with their eyes partly opened. In an extremely sick patient, as soon as the cramps were relieved and sleep or coma followed, the postorbital pad being sunken from loss of body fluid, the eyeball rotated slightly upward and the lids remained apart, two-thirds of the pupil frequently remaining visible. With the return of a cramp the eyes would be forcibly closed, then widely opened, and the palpebral aperture would assume its normal size.

Among children acutely ill or even moderately sick, this feature was almost invariably present and was considered, in the border-line cases, as of diagnostic importance.

The present-day treatment of cholera is still in an unsettled state, considerable experimentation going on with vaccines, antitoxins, etc. While undoubtedly the condition of profound collapse existing in a patient with acute cholera is due in a large measure to intoxication, the circulatory disturbance from the loss of body fluids is the most urgent condition requiring relief. The simple administration of antitoxin in this state, unless given in large enough doses to combat the circulatory failure, would in many cases be insufficient to tide the patient over the crisis.

At the onset of this epidemic (and an epidemic could be safely predicted because of the widely scattered sources of the first few cases), it was decided to restrict the routine treatment to the combating of two conditions, namely, the circulatory disturbance from the loss of body fluids, and the nephritis. No attempt was made toward the specific neutralization of toxins, nor was any attempt made to check, by sedatives, the diarrhea or vomiting.

Intravenous injections, without the routine use of cardiac stimulants, constituted the sole means of circulatory support in patients who showed no evidence of previous circulatory disorder. The solution used routinely was composed of 0.45 per cent. sodium chlorid and 0.25 per cent. sodium bicarbonate, introduced slowly through a needle of 0.5 mm. bore directly into the unexposed vein at the rate of about 1 liter in forty-five minutes.

By this method, considerable time was saved in the preliminary introduction of the solution, the rate of flow having but little apparent effect, save that the tendency to cramping was less marked.

The amount of fluid introduced was entirely dependent on the condition of the patient; in the exceptional case, a few hundred cubic centimeters being sufficient, while in others from 10 to 12 liters were given within twenty-four hours. It was found, by giving sufficient solution to bring the blood-pressure nearly to normal, that vomiting and cramps were to a large extent avoided, while if a larger amount were given intravenously, the patient would almost at once have violent abdominal cramps and vomiting.

Usually, the slow introduction of warm solution into the circulation of an acutely ill patient acted as a mild hypnotic, the patient passing into quiet sleep, awaking only to ask for water. Repeated injections of the solution were made into the same vein, with almost no pain and no infections.

Contrary to expectation, the introduction of a needle into the collapsed vein of a cholera patient presents little difficulty. The vein appears as a blue line beneath the skin, and by the sense of touch one penetrates it, skill being easily acquired.

The vein usually selected for injection was the median cubital; occasionally it became necessary to use one of the dorsal veins of the foot or of the fingers, and more rarely the jugular.

The apparently good results obtained from the slow, frequent, intravenous injections suggested the desirability of continuous proctoclysis as a means of supplying fluid. This method was tried in a few children in the first 100 cases and in all subsequent patients in whose cases there had been a loss of body fluid. In the case of average severity, the introduction of fluid by proctoclysis was sufficient to cause the pulse to return to normal in from eight to twelve hours. In the more severe types, intravenous injections were given to tide the patient over the crisis. The solution was always given at slightly above body temperature by keeping hot water bottles over the rectal tubes and, while the introduction of fluid in this manner increased the number of stools, the patients appeared to receive considerable comfort from the warm solution.

Before the introduction of proctoclysis as a routine measure, a number of cases of the cholera sicca type were admitted to the wards. These patients almost always died in spite of the numerous intravenous injections. At necropsy, the small intestines of these patients were found to be filled with fluid, while the large intestines were comparatively free. Later when such cases were admitted they were given routinely a large enema and continuous proctoclysis, the solution running in a small stream rather than in drops. At the same time the circulation was supported by intravenous injections. Usually, these patients responded in an hour or so with copious stools and, having mechanically purged themselves, began to show signs of recovery; the rapid proctoclysis having emptied the small intestines, seemingly by siphonage.

Acute nephritis, the most common and most feared sequel of cholera, was rather frequent in the first hundred cases treated. In subsequent cases, reestablishment of kidney function was much quicker, perhaps because the continual lavage of the large intestine aided the elimination of toxic materials without the loss of body fluid.

In the first hundred cases, in which proctoclysis was rarely used, 76 patients had suppression of urine, 13 for seventy-two hours or longer, 9 of whom developed uremia with seven deaths.

In the second hundred cases with proctoclysis, 69 patients had suppression of urine, 9 for seventy-two hours or longer; 3 developed uremia, 2 of whom died, both being uremic on admission.

In the third hundred cases, 70 patients had suppression of urine, 9 for seventy-two hours or longer; 3 developed uremia and died.

It is interesting to note, in passing, that one patient had complete suppression of urine for 144 hours, having had during this time continuous proctoclysis. The longest time of complete suppression with recovery was ninety-six hours.

In attempting to demonstrate the value of continuous proctoclysis as an aid to kidney elimination, a number of cases were selected which had suppression of urine after the acute choleraic symptoms had subsided. Proctoclysis was used in these cases until the return of kidney function was evidenced by the voiding of two or three hundred c.c. of urine, and at this stage the proctoclysis was discontinued. Within a few hours there would be noted in such cases a distinct decline in the urinary output, as well as a progressive restlessness and flushing of the cheeks. Proctoclysis was then renewed, and within a few hours, urine would be excreted in nearly normal amounts, patients voiding, when encouraged, every hour. This procedure was repeated sufficiently often to demonstrate, apparently at least, the value of continuous proctoclysis in all cholera cases until there is complete return of normal renal function.

The routine use of hot-water bags to maintain body temperature was discontinued after much deliberation. Since the low body temperature in cholera patients is due almost solely to circulatory depletion and not to thermogenic irregularities, the judicious introduction of solution intravenously at about 39 C. (102.2 F.) speedily causes the skin to return to a more nearly normal temperature, the subsequent surface temperature, together with the pulse, being important indexes of the need of intravenous injections.

On analysis of the clinical records of 330 cases, a number of interesting facts were found. The appearance of the disease, as would be expected, was most frequent among the Filipinos, there being 303 cases. Among the Japanese there were 12 cases, for the most part in fishermen, whose hygienic surroundings are notoriously poor. Ten Americans were infected, one of whom died of uremia. Two Germans, one Italian, one Indian and one Chinese were also infected.

The distribution among the sexes was unequal, 36 per cent. being females.

The occurrence of the disease with reference to age was as follows:

Between 1 and 4 years occurred 12 per cent. of the cases, the mortality being 50 per cent.

Between 5 and 14 years occurred 9 per cent. of the cases, the mortality being 29 per cent.

Between 15 and 39 years occurred 62 per cent. of the cases, the mortality being 22 per cent.

Between 40 and 76 years occurred 17 per cent. of the cases, the mortality being 42 per cent.

The youngest patient, a baby girl of 2 months, recovered, her mother having died of cholera. The oldest patient, a woman of 76, died.

Thirty-four per cent. of the patients received intravenous injections, the average amount being 2.5 liters. Thirty-nine per cent. of the cases received proctoclysis alone.

The average total time of illness among the patients who died in the hospital was seventy-two hours; of this the average time of illness previous to admission to the hospital was seventeen hours.

The average time of convalescence, which comprehends the complete disappearance of all symptoms and two consecutive negative stool examinations on separate days, was thirteen days.

The commonest complication met was bronchopneumonia, nearly all the children between the ages of 1 and 4 years who died after the acute choleraic symptoms passed succumbing to this condition.

Acute parotitis was seen in three cases and acute arthritis in one case. Chronic morphinism was the causative factor in the death of one patient who passed safely through the acute stages of cholera, but whose kidneys failed to functionate, death from uremia following.

Among women, a large percentage of whom were pregnant, three were delivered, nearly at term, of dead fetuses and recovered; a fourth died in the acute stages of cholera; a post-mortem cesarean section delivered a dead full-term fetus. Two patients aborted at about the third month and recovered; a third aborted previous to admission to the hospital, attended by a midwife, and recovered after passing through a severe choleraic infection, together with puerperal sepsis.

Aside from the isolation of cholera cases and the disinfection of infected houses, the efforts of the bureau of health to control the epidemic were, to a large extent, directed toward the isolation and quarantining of vibrio carriers. As soon as a case of suspected cholera was isolated at San Lazaro, the stools of all the members of the household were examined bacteriologically at the Bureau of Science, and persons found to harbor cholera vibrios were sent to San Lazaro and placed in quarantine.

In all, 570 persons, regardless of social standing, were isolated. These persons as a rule submitted to the confinement cheerfully, although not infrequently the bread-winner of the family was quarantined.

The "carriers" were confined to the hospital until at least two consecutive negative stool specimens were obtained on separate days. The average time required was seven days; the longest time in which vibrios were found was forty days. As a routine measure, a saline cathartic was administered on admission; subsequently salol in 0.6 gm. doses was administered three times daily.

Undoubtedly this isolation of vibrio carriers plays an important part in the controlling of an epidemic; we believe that clinical cholera may be spread from person to person, yet it is difficult to understand why more of these known carriers do not develop cholera. Much more must depend on the virulence of the vibrio than on the resistance of the individual, an instance in this hospital during the present epidemic appearing to demonstrate this.

July 18, R. A. was admitted to the tuberculosis pavilion. From the time of his admission until July 28, he averaged six stools daily; the character, soft and mucoid, with small amounts of blood, suggested the persistent diarrhea seen occasionally in tuberculous patients. July 28, he had eight stools of the same character; a careful examination failed to show the presence of entamebas and, as a precautionary measure, a bacteriologic examination for cholera was made, the patient in the meantime being isolated from the other patients.

In the evening of July 25, D. D. was admitted to the same ward; the next day he had one normal stool; on the following day, July 27, he had nine stools, soft, yellow and without blood or mucus. July 28, he had seven stools of the same character; examination of the stools failed to show entamebas; this patient, too, was isolated and examined for the cholera vibrio.

The specimens from R. A. and D. D. were reported by the Bureau of Science on the 31st as positive for the cholera vibrio. In the fear that the infection might spread through the ward with serious consequences, specimens were taken from all the patients in the ward.

August 3, twelve of these patients were reported as positive and were isolated. On the 6th, specimens were taken from the remaining presumably non-infected patients and four new infections were found. On the 8th, no new infections were detected, while on the 10th, five previously negative patients were found to be carriers and were isolated. In all, twenty-three patients were found to harbor the cholera vibrio in a ward of thirty-two patients.

While neither of these patients, R. A. and D. D., developed a single symptom of cholera aside from the diarrhea, it seems reasonable to assume that they represent the mildest manifestations of the disease. Certain it is that their body resistance was at a minimum; the tuberculous patients admitted to the wards of San Lazaro Hospital are almost always *in extremis,* their vitality is extremely low; usually they are the ones refused admission at other hospitals.

In addition to the foregoing cases, one other patient developed symptoms of possible effect from the infection:

C. M., admitted May 22, was usually somewhat constipated; August 3 and 4 he had no stools, on the 5th he had three normal stools, on the 6th, the day he was found to be a carrier, he had four stools, soft and brownish. On the 7th he had twelve stools, for the first time watery; on the 8th, the day of his death, he had three soft yellow stools. This patient developed no symptoms of cholera other than the diarrhea, and died from gradual cessation of respiration. Nearly all of the twenty-three patients found to be infected died of tuberculosis and five of these were examined by necropsy. R. A., the first patient found to be infected, died two days after the detection of the infection. No anatomic evidence of cholera was found at necropsy, the gross pathologic diagnosis being generalized tuberculosis. A culture taken from the small intestine failed to show the presence of the cholera vibrio.

D. D., the second patient found to be infected, died nine days after the detection of the infection. At necropsy, there was found a slight injection of the mucosa of the duodenum, with no other lesion suggestive of cholera. The anatomic diagnosis, as in the previous case, was generalized tuberculosis. The culture taken from the small intestine was positive for the cholera vibrio. Three other patients failed to show gross anatomic evidence of cholera, two of them, however, being positive for vibrio from intestinal culture.

Of nearly 600 vibrio carriers quarantined in San Lazaro, but one patient developed true clinical cholera:

L. Z., a Filipino woman aged 40, admitted to the tuberculosis department July 11, 1914, was allowed to leave the hospital for twenty-four hours, September 6, to visit her relatives. On her return to the wards she was isolated from the other patients and a stool specimen taken for bacteriologic examination; this specimen was reported positive for the cholera vibrio, and she was at once removed to quarantine. From September 6 to September 21, she was in her usual fair physical condition. September 22, after being a known vibrio carrier for sixteen days, she began having watery stools, six in the first twenty-four hours, but with no other complaint. Twenty-four hours later she was having copious watery stools and began vomiting for the first time. September 24 she complained of chest pains of indefinite character, violent cramps in the skeletal muscles, copious vomiting and frequent painless watery stools, and had complete suppression of urine; she was for the first time confined to bed and was given continuous proctoclysis with no other treatment.

September 24 she had 16 stools and there was no urine.
September 25 she had 17 stools and 390 c.c. of urine.
September 26 she had 9 stools and 960 c.c. of urine.
September 27 she had 7 stools and 860 c.c. of urine.
September 28 she had 3 stools and the urine was normal, the general condition good, and recovery was uneventful.

CONCLUSIONS

1. The epidemic was of about the usual severity.
2. The epidemic was composed of a number of small sporadic outbreaks.
3. The sources of infection were multiple.
4. The slow introduction of solution intravenously is the more beneficial method.
5. Continuous proctoclysis is a valuable aid in treatment.
6. Cholera vibrio carriers are not only a public menace, but are themselves in danger of contracting cholera.

A PSYCHOSIS OF SEVENTEEN YEARS' DURATION WITH RECOVERY *

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The following case is unusually interesting, chiefly by virtue of its long duration—almost seventeen years; the presence of a clinical picture commonly associated with dementia; the eventual recovery. The first two features, namely, the duration and the symptom complex, are difficult to explain when viewed in the light of the unexpected and favorable outcome. The possibility of a retrospective diagnosis is also to be considered.

The clinical history is based on the case notes, which are to some extent supplemented and amplified by personal recollections of various members of the patient's family and of the nurse who attended her during many years of her illness.

REPORT OF CASE

Clinical History.—A. R., a woman aged 41, of American parentage, was admitted to the hospital in 1897, in her twenty-fourth year. She was the youngest of seven children. Her oldest sister died insane. The mother, brothers, sisters and the patient herself are all subject to nervous headaches.

Personal History.—The patient attended parochial and later public schools, until her sixteenth year. She was at least an average scholar, and reached the senior grammar grade. In disposition she was cheerful, sociable, and self-sacrificing. She married at 21 and had three children during the following four years. The death of the second child, a month preceding the birth of the third, was said to have made a profound impression on her. The third child was born after an extremely difficult and protracted labor, which, however, was non-instrumental. She sustained severe lacerations[1] and following it she was said to have developed "blood poisoning."

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* Read before the Philadelphia Psychiatrical Society at its Annual Meeting at the College of Physicians and Surgeons, Jan. 8, 1915.

When admitted four months later she was much reduced physically—weighed only 70 pounds—and her limbs were so contracted that "her knees touched her chin." (At present the patient has a decided stoop and rounded shoulders.) Her mental state during the first three months at the hospital was marked by restlessness, confusion and incoherence. There was a distinct febrile reaction extending over a period of two months.

Summarizing her mental condition during her hospital residence, it would appear that for the first ten years she was confused and stuporous, completely disoriented, never responded to questions, and was extremely filthy in her habits. The first three years of this period were spent in bed and nourishment was accomplished solely by artificial means. From the tenth to the fifteenth year there were alternating periods of violence and depression. Though she was still an untidy, apparently demented patient, yet there was a decided improvement, for in the thirteenth year she began to converse, but with a tendency to mimicry. To some degree she developed an interest in her surroundings; began to do a little embroidery and succeeded in partially orienting herself. During the past two years there has been some childishness in behavior, with irregular intervals of mild depression, but this cleared up fairly rapidly, and eight months ago she was considered well enough to go home on a trial visit. Since that time she has remained apparently normal.

Present Mental Status.—At present she is a voluntary patient; her mental state would not justify detention on the old commitment papers. She is perfectly clear and alert, neat and tidy in appearance, interested in her environment, and does remarkable embroidery and fancy sewing. Her memory for events which preceded and followed her illness is intact.

Concerning the illness itself, there is an almost complete amnesia for the first ten years; for later occurrences there are here and there fragmentary recollections. There is perhaps some blunting of the general intelligence, which might easily be accounted for by such a long absence and complete dissociation from current events and progress. Our feeling is that this restriction in one field is perhaps no greater than would be noted in any person who for at least ten years had been completely severed from all human intercourse and interests.

Certainly those mental attributes which one would ordinarily expect to show some ill effects and deficiencies after such a long drawn out exhaustive process are not at all affected. Attention, memory, orientation, and the emotional reactions are not disturbed. The residual mental timidity will doubtless be overcome and the narrowing of the conceptive faculty eventually be expanded by the birth of new interests. The reeducation which will result from once more living in a world peopled by normal beings should remove even the traces of her unusual experience.

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Physical Examination.—At present the patient is well nourished and active; weighing 146 pounds. There is a double mitral murmur which is well compensated. Slight enlargement and retroversion of the uterus exists, with moderate leukorrhea. A cervical polyp has recently been removed. Both ring fingers show symmetrical contractures and the terminal phalanges cannot be extended. (The patient has been told that these deformities resulted from constantly sitting on her hands.)

Urine: Specific gravity 1.030, many leukocytes, epithelial cells and mucous shreds. Neither albumin nor sugar.

Blood: Red blood cells, 3,495,000; hemoglobin, 89 per cent.; white blood cells, 7,833.

Blood Pressure: Systolic, 118; diastolic, 80; pulse pressure, 38.

Wassermann: Negative.

COMMENT

We have, then, a woman now in early middle life, who, after passing through a tedious mental illness embracing more than one-half of the third, the entire fourth, and extending into the fifth decade of her life, during the greater portion of which she exhibited a symptom complex which led to her being classified as hopelessly demented, seems finally to have experienced complete mental restoration.

DIFFERENTIAL DIAGNOSIS

Before considering the question of attempting to establish a diagnosis at this late date, I would like to digress for a few moments. The classification of mental disease is admittedly inexact and incomplete. That this is so is clearly proved by the fact that new subgroups are constantly being split off from what were formerly believed to be clinical entities. The larger number of cases fall more or less naturally into the existing classification, but there remains a not inconsiderable group which will not fit. These "clinical misfits" are usually appended to some known group and labelled "allied to"; it would perhaps be more desirable to permit them to stand merely as cases presenting a certain group of symptoms with the hope that further clinical investigation will clear up their complexities. The reported case appears to be of this character, and the retrospective diagnosis is gone into merely as a matter of speculative interest.

Manic-Depressive Psychosis.—The ten years during which she was described as being disoriented, confused and stuporous, seem to place her unquestionably outside the manic-depressive group. Any definite emotional reaction—breaking into the monotony of a practically vegetative existence—would certainly have been noted and recorded. Again, her later violence and excitements appear to have been largely purposeless, suggesting Kraepelin's subpraecox group, the periodic type, rather than a frank maniacal phase. The favorable outcome which might be adduced as pointing to an emotional disorder seems to be entirely outweighed by the clinical evidence.

Dementia Praecox.—This classification might perhaps be made to measure up to the symptoms, but could hardly in this case be made to co[illegible] he result, namely, recovery. There i[illegible] consi[illegible] live[illegible] of opinion regarding the [illegible] nat[illegible] path[illegible] logic process in praecox [illegible] alie[illegible] on t[illegible] validity of "recovery" [illegible] ec[illegible] insist on some grade of deme[illegible] impl[illegible] ry requirement for final [illegible] in [illegible] that this constitutes [illegible] bas[illegible] Dementia is here int[illegible] its [illegible] is, a definite menta[illegible] i[illegible] deterioration in one or more fields. Those who maintain that recovery is not all incompatible with praecox, apply their theory only to the fairly recent case—the one in which the symptom complex is merely highly suggestive, and the diagnosis very largely a matter of individual opinion. In a psychosis of seventeen years' duration, terminating in a recovery, this diagnosis is practically impossible from either point of view.

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[1] Gynecologic examination three years after admission revealed a perineal laceration from vagina to rectum, and a slight cervical tear.

Infective-Exhaustive Psychosis—Etiology.—There are certain factors which suggest an infective-exhaustive psychosis. A young woman bearing three children within the comparatively short period of four years—the final labor being extremely difficult and protracted and resulting in extensive laceration—must be regarded as being in a state of greatly lowered vitality, an easy victim for some infectious process. Immediately after there was "blood poisoning" (septicemia?). Adding to this pathologic array, the psychic factor of the death of her second child, and considering the fact that we are here dealing with a nervous organization whose resistance is probably less than normal (hereditary?—one sister insane), we would seem to have sufficient physical and psychic trauma to precipitate even an unusually severe mental disturbance. That there was a definite febrile process is clearly evidenced by the clinical chart.

This was originally believed to represent an atypical enteric fever, but we are now inclined to think it was probably the reaction to a puerperal infection. The temperature curve was irregular and the pulse rate comparatively high. The disease may be prolonged for months and the temperature curve is irregular (Osler). Our patient has a double mitral murmur. This, of course, may have been present from childhood or may have developed much later in life—and there may indeed be no connection between it and the supposed septicemic process. It is also perfectly compatible with typhoid fever. However, the following sequence seems to be the most natural and logical one.

1. The lacerated and devitalized pelvic tissues acted as an open portal for bacterial invasion.
2. Bacterial infection did occur and gave rise to a septicemia.
3. The toxins of this disease left a permanent effect on the heart valve. It might be added that our patient did not suffer from any of the diseases of childhood, which are most likely to have valvular disease as a sequel, and that endocardial involvement is perhaps somewhat more frequent in septicemia than in other infections.

Unfortunately we have but meager information relative to our patient's condition at home during the four months' period previous to her hospital admission. We know that she had been restless at night, talking loudly and incoherently, and refusing food. At any rate there seems to have been a more or less definite demarcation between this early active stage of from four to six months' duration, and a later period of stuporous confusion lasting many years. The possibility of an acute confusional insanity, *die akute Verwirrtheit* (amentia) of Kraepelin gradually merging into an exhaustive state, is at least to be thought of. Kraepelin recognizes this possibility. Speaking of acute confusional insanity he says: "In the rarer cases of longer duration (more than two to six months) we must consider the development of an infective-exhaustive state."

SYMPTOM COMPLEX

A review of the later symptom complex presented leaves the impression of confusion and stupor as basic symptomatic elements. On such a foundation the detailed clinical structure can be most naturally erected. Disorientation, physical lethargy, and later purposeless motor activity, refusal of, or rather indifference toward food, idea and word poverty, untidiness, in fact complete neglect of personal needs, all strongly suggest either a permanently injured or a very deeply clouded brain. Similar symptoms are frequently noted in deeply exhausted mental states. Again, lack of, or at best very tardy and partial, insight separates the infective-exhaustive group from psychoses in which there is a definite emotional reaction.

DURATION

The duration in this case is longer than any I have been able to find in the literature. In the recent edition of Kraepelin's *Psychiatry* (Ed. 8, ii), under a general grouping of the infectious insanities, the author further classifies (*a*) the febrile deliriums; (*b*) the infectious deliriums; (*c*) acute confusional insanity, and finally (*d*) the infective-exhaustive type. Under this last heading he describes a group of cases, varying in severity and merging with one another clinically, due to toxins operating primarily or secondarily, whose effects may be exerted over long periods of time. In the severest cases there is practically a cessation of psychic life. At the onset there may be a confused, depressed mental state with perhaps anxiety, persecutory ideas, feeling of personal unworthiness, visual and auditory hallucinosis. This is succeeded by a clouded mentality embracing inattention, memory loss, poverty of thought, disorientation, and a general blunting in the intellectual spheres.

Though there are wide variations in the clinical pictures, the patients for the greater part are passive rather than active or resistive, are usually bed-ridden, speak rarely, and in fact may be mute, refuse all nourishment and must be fed, neglect their personal needs and are filthy. There are often disturbed obstinate and incoherent periods, and childishness and playfulness may develop. Duration is a matter of many months, but about 50 per cent. show, coincidently with a gain in body weight, a general mental improvement. They become brighter and more approachable, exhibit awakening interest in their surroundings, begin to occupy themselves. There usually remains, however, a long period during which increased sense of fatigue, defective memory, irritability and emotional uncertainty are manifested. The ultimate outcome is recovery. Corresponding to this picture, Tanzi, in his textbook of mental diseases, classifies the more profound exhaustive states under the name of *"amentia attonita."* The diagnosis rests on a state of "inactive stupor without emotions or memory." The author feels that in some of these cases a differential diagnosis from dementia praecox is impossible during the course of the psychosis, and that the clinical riddle can only be read in the light of the favorable result. The complete emotional indifference which Tanzi regards as the predominating factor is explained by "a suspension of the processes of perception and representation." The perceptions are so deformed and the mental images so contradictory and interfere with each other to such an extent that the psychic processes tions[1] and following it she was said to have developed "blood poisoning."

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Dementia Praecox.—This classification might perhaps be made to measure up to the symptoms, but could hardly in this case be made to cover the result, namely, recovery. There is still considerable diversity of opinion regarding the essential nature of the pathologic process in praecox. Many alienists question the validity of "recovery" even in a recent case, and insist on some grade of dementia as an implied and necessary requirement for final diagnosis—in fact, they believe that this constitutes the clinical basis of the disease. Dementia is here interpreted in its strictest sense, that is, a definite mental subtraction involving permanent deterioration in one or more fields. Those who maintain that recovery is not all incompatible with praecox, apply their theory only to the fairly recent case—the one in which the symptom complex is merely highly suggestive, and the diagnosis very largely a matter of individual opinion. In a psychosis of seventeen years' duration, terminating in a recovery, this diagnosis is practically impossible from either point of view.

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Both of these authorities and also other investigators concede to the infective-exhaustive group the possibility of an extremely tedious course. The cases which came under their observation have, however, been a *matter of many months rather than of many* years.

Without regard to its other features, the case reported, by reason of its unusual duration and the remarkable outcome, seems entitled to rank as a psychiatric curiosity.

4401 Market Street.

USE OF THE DIRECT VISION CYSTOSCOPE WITH WATER DILATATION FOR PROCTOSCOPIC EXAMINATIONS

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Examination of the rectum and lower sigmoid by some method which permits of visual inspection of their interior is a diagnostic procedure of the first class. Tubular specula have been utilized for such examinations for many years. In the lateral position they permit of the inspection of a limited area of the mucous membrane which presents at the distal end while the instrument is being withdrawn. In a normal case, the tube may usually be introduced for a considerable distance with comparative ease; but the presence of those pathologic conditions most demanding investigation very frequently adds such technical difficulties or even dangers to this procedure as largely to destroy its value.

The introduction of the principle of atmospheric inflation in rectal work by Van Buren and by Kelly was a great advance, and has constituted the essential feature in modern proctoscopy. Under favorable conditions this method allows of very satisfactory examination of the lower bowel. The exaggerated knee-chest position is, however, not only difficult to maintain, but it is so objectionable to most patients that the average surgeon for the latter reason alone fails to make many proctoscopic examinations which he knows should be made. Also, with this method, as with the method first mentioned, serious technical difficulties are often encountered in the presence of those very pathologic conditions most demanding accurate investigation.

The advantages of a satisfactory means of examining the lower bowel with the patient in the ordinary lithotomy or cystoscopic position instead of in the knee-chest position and using an instrument five-sixteenths inch instead of seven-eighths or 1¼ inches in diameter are self evident.

During the past two years I have used a simple, direct vision, water medium cystoscope of the Elsner-Braasch type for examinations of the rectum and lower sigmoid, and this method has proved entirely satisfactory in practically all cases. It is as painless as an ordinary enema, even less so, for it is never necessary to fill the bowel completely with the water. The patient is not kept in an uncomfortable position, and it is not necessary to expose even the genitalia during the examination. The details of the mucosa are much clearer when seen through a homogeneous water medium than they are when the wet and often slimy mucosa is viewed through an air medium, and there is no reflected glare when artificial light is being used.

Particles of mucus and feces do not make the examining medium turbid, and when they are in the line of vision they can be readily washed away by the irrigating fluid. Under the guidance of the eye, and without the possibility of danger, the beak of the cystoscope may be guided past mucous folds or even tumor growths until the entire length (8 inches) of the cystoscope has been introduced. The normal relationships of the bowel are scarcely, or not at all, disturbed. Ulcers, fistulous openings, diverticuli, and papillomatous and other tumor growths may be viewed with the same ease and accuracy as in cystoscopic examinations. The technic is almost exactly the same as for the use of the direct vision cystoscope in bladder work.

The first case in which I employed this method was one of carcinoma involving the rectovaginal septum. In this patient, the usual proctoscopic examination seemed out of the question; but after an examination of the bladder for a suspected involvement, the cystoscope was introduced into the rectum in the hopes of getting a partial view of the involvement of this region. I was surprised to find that the view was quite as good as that obtained in the bladder, that particles of feces did not make the medium turbid, that whenever the bowel became distended the fluid could be withdrawn just as in bladder examinations, and that by guiding the instrument with the eye, the beak could be made to pass one and then another of the mucous folds until the entire length of the cystoscope had been introduced, after which a good view of the bowel could be obtained as far up as the illumination would carry. All of this was accomplished with even less discomfort to the patient than had been caused by the preceding cystoscopic examination.

Since this first experience, the cystoscopic method of examining rectal cases has been used with increasing frequency until, at present in my own work proctoscopy by means of a direct vision cystoscope has come to bear about the same relation to the knee-chest proctoscopy as does cystoscopy by water dilatation to the Kelly method of examining the bladder under atmospheric dilatation.

This method is not intended to supplant the standard procedures now commonly employed in proctoscopy. I believe, however, that it is a valuable addition to the means now usually employed, because it is entirely painless, it does not require undue exposure or a position repugnant to the patient, and in many cases, especially those with some real pathologic condition, the view obtained is actually superior to that procured by any other method.

For this work, the simple, direct vision cystoscope of the Elsner-Braasch type is preferable to the more complicated telescopic instruments. It requires only enough fluid to separate the surfaces to be observed and gives a view free from distortion; there are no lenses to become soiled by fecal matter, and turbidity, even that due to hemorrhage, does not obscure the view if fresh fluid is flowing through the instrument.

Before the examination, the patient should evacuate the lower bowel, preferably by means of an enema. If fecal particles remain, they may be washed away by the irrigating fluid. I use plain water at room temperature. Whenever this becomes turbid or the patient complains of a sense of fulness, the fluid is drained off through the cystoscope exactly as in irrigating the bladder. The total amount of fluid used is seldom half that of the ordinary enema.

In my experience this simple method of proctoscopy has proved so satisfactory and free from discomfort to the patient that with it many examinations have been made which otherwise would probably have been neglected.

A Case of Pachymeningitis Hemorrhagica Interna, with Positive Wassermann Reaction.—The literature mentions syphilis as an occasional cause of hemorrhage from the meninges (Oppenheim, Beck and Hahn). In this connection the following case is interesting. It would also seem to be unusual because of the youth of the patient and the absence of other signs of syphilis, acquired or hereditary.

History.—The patient was a Russian girl, aged 16, well nourished and without history of any previous illness. The only feature in her family history worthy of note is the fact of her father's death from esophageal varix. The patient's illness was of sudden onset, three days before admission to hospital, with severe headache and an irregular fever; the headache being at the base of the skull and persistent. Rigidity of the head and neck accompanied the first symptom. The patient was hurriedly sent to the hospital three days after the onset because of being in a semidelirious, semicomatose condition.

Examination.—The girl was unconscious, moaning and resisting when handled, otherwise lying in a constrained posture with facial expression of pain. The pupils were dilated and reacted poorly to light; the fundi showed no change. There was a marked degree of rigidity of the muscles of the neck; none of the limbs. Hyperesthesia was general, the patient crying out and resisting whenever handled. The knee-jerks were diminished. Temperature 100 to 101 F. Pulse 90 to 100. Respirations 26. Blood examination showed a leukocytosis of 21,000. Lumbar puncture on two occasions produced a serosanguineous fluid, without clotting, and showing on microscopic examination numerous red blood cells. The fluid was under increased pressure. Blood-Wassermann test positive.

In the course of a week the patient gradually became less rigid, less sensitive to external stimuli and each day more attentive to her surroundings. Her recovery was more rapid after a profuse bleeding from the nose. On recovery there was amnesia for the period of her acute symptoms; otherwise no mental residuals. A month later the patient appeared in excellent health.—Harold W. Wright, M.D., Santa Barbara, Cal.

Public Responsibility and Tuberculosis.—In all talks to laymen the health officer should try to imbue his hearers with his own enthusiasm and devotion to the tuberculosis cause. He should tell them that tuberculosis is not merely a medical disease, but that it has a very large social aspect. Bad housing, overcrowding, dangerous congestion, and even underfeeding exist, alas, not only in our large cities, but also in smaller communities. Wealthy and influential citizens should be shown what great good they can accomplish by becoming interested in the amelioration of such conditions as are conducive to the spread of tuberculosis. They will themselves benefit in the end from a clean and healthy community. Personal service to the consumptive poor, and kind, generous, and considerate actions toward those afflicted with tuberculosis, rich and poor alike, will create a better and more helpful feeling throughout the community.—S. Adolphus Knopf, *Public Health Reports,* Dec. 18, 1914.

Special Article

PRACTICAL PHARMACOLOGY

(Continued from page 1073)

XIII

ANTISEPTICS AND DISINFECTANTS

DERIVATIVES OF BENZENE—*(Continued)*

THERAPEUTIC USES

One part of phenol in five hundred or a thousand parts of water is actively antiseptic for most of the common pathogenic bacteria, and a 1 per cent. solution is actively germicidal for nearly all of the nonsporulating forms, destroying them in a few minutes at ordinary temperatures. Anthrax spores, however, are not destroyed by a 5 per cent. solution in twenty-four hours.

Phenol is applied to the skin in dilute solution or preferably as an ointment to relieve itching as in piles. It is also useful as an application to small painful ulcers. The statement is often made that the pain of burns is increased by phenol, but such increase of pain is transient and an anesthetic action is then obtained. Phenol cannot be applied to large surfaces because of the danger of absorption.

It is often used as an antiseptic in the form of gargles and mouth-washes, but in most cases it can have little value as an antiseptic. Any benefit derived must be due to the allaying of irritation and the cleansing of surfaces, for phenol cannot be kept in contact with the bacteria long enough to have any important influence on their multiplication.

It is said to be of some value in vomiting. This is probably explained by its capacity for lessening the irritability of the gastric mucous membrane, by its anesthetic action. In that case it can have little more than momentary value. It has been used to relieve gastric fermentation, but it is not recommended for this purpose.

The antiseptic and disinfectant uses of many of the agents which have been discussed require no further consideration. Salicylic acid, the salicylates, including salol and aspirin, and the other derivatives of salicylic acid, are used widely for the relief of joint symptoms in articular rheumatism, and for the reduction of fever which attends that condition. Salicylic acid has no influence on the endocarditis that accompanies rheumatism so frequently, however, and, as previously stated, it does not prevent the recurrence of the rheumatic attacks.

The salicylates afford relief in rheumatism only while medication is continued. They are used for the relief of headache and other neuralgic affections, in chorea, in tonsillitis and in various catarrhal inflammations.

The salicylates cause some increase in the excretion of uric acid. For this reason, perhaps, they have been used in gout, but they are of little value in that condition. There is no evidence that any slight influence which they may have on the secretion of bile is of value in the treatment of constipation. Sodium salicylate is said to be useful in certain conditions of the eye, including iritis, keratitis and glaucoma.

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[*] This is the thirteenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

The caustic action of salicylic acid is utilized for the removal of corns and calluses.

Large doses of the salicylates are contra-indicated late in the course of pregnancy because of their tendency to produce abortion.

Phenyl salicylate, or salol, is said to have an especial field of usefulness as an antiseptic in diarrhea and enteritis.

Its comparative insolubility in the gastric contents has led to its employment for coating pills intended to pass through the stomach and dissolve in the intestine, but the amount required to coat one or two large pills constitutes very nearly a full therapeutic dose.

DOSAGE

Phenol is crystalline at room temperature, and owing to the inconvenience of handling it, the liquefied phenol is usually employed. The dose of the liquefied phenol is 0.05 c.c. (1 minim), corresponding to about 0.04 c.c. (4/5 grain) of the crystalline.

Salicylic acid is seldom administered as such internally, sodium salicylate being commonly employed, or methyl salicylate (oil of sweet birch or oil of wintergreen) or aspirin may be used.

Methyl salicylate and sodium salicylate are usually given in doses of 1 gm. (15 grains), which may be repeated every hour or every two hours until the maximum permissible amount is given. This is indicated by ringing in the ears, perhaps some dizziness, and occasionally some slight mental disturbance such as confusion.

About 6 to 8 gm. (90 to 120 grains) are usually required to induce the symptoms indicative of the limits of tolerance, but if the larger amount fails to induce the usual symptoms, the dose may be given less frequently, or a smaller dose every two hours. After the symptoms appear the administration is usually limited to about three doses per day.

For headache and neuralgia much smaller amounts are employed, 1 gm. (15 grains) being usually sufficient.

Phenyl salicylate, or salol, is given in smaller amounts than is sodium salicylate because of the danger of phenol poisoning from such large doses. For whatever purpose salol is used, the dose should not usually exceed 0.5 gm. (8 grains).

Aspirin, or acetylsalicylic acid, is given in somewhat smaller doses than is sodium salicylate in the treatment of rheumatism, the symptoms which indicate the limits of dosage being the same as with sodium salicylate.

It is given in doses of 0.3 gm. (5 grains) for the relief of headache.

Benzoates might be given in larger doses than the salicylates were there any occasion to administer them internally.

Cresol is not often used internally, but the dose is said to be 0.05 c.c. (1 minim).

Creosote is given in doses of 0.2 c.c. (3 minims) three times daily, but it should be discontinued when it disturbs the appetite and digestion.

Guaiacol is given in doses of 0.1 c.c. (1½ minims) in an emulsion or dissolved in a bland oil contained in capsules, and if this dose is borne without disturbance it may be increased cautiously to 0.6 c.c. (10 minims). The carbonate of guaiacol may be given more boldly, since it is inactive until it is decomposed, the dose being 1 gm. (15 grains). It is incompatible with alkaline hydroxid.

The dose of thymol for ordinary purposes is said to be 0.1 gm. (1½ grains), but in the treatment of hookworm disease, it must be used more boldly as follows: For children under 5 years, the fine powder is given in doses of 0.5 gm. (8 grains); from 5 to 10 years, 1 gm. (15 grains); from 10 to 15 years, 1.5 gm. (22 grains); from 15 to 20 years, 2 gm. (30 grains); and over 20 years, 3 to 4 gm. (45 to 60 grains).

It is especially necessary to prevent its absorption when such large doses are used; hence oils and fats should be avoided in the diet.

Betanaphthol is used in doses of 0.1 to 0.3 gm. (1½ to 5 grains).

If the intestinal contents measure as much as 4 liters, the larger dose mentioned above would constitute a dilution of one part of betanaphthol in about thirteen thousand parts of the contents—a dilution in which its antiseptic action is extremely feeble at best. Such a dose probably has little antiseptic action beyond the small intestine.

Betanaphthol is sometimes used externally in the form of an ointment.

MATERIA MEDICA *

Sodii Salicylas.—Sodium Salicylate, U. S. P.

Sodium salicylate occurs as white pearly scales or as an amorphous powder; the commercial product usually has a slight buff or pink tinge. It is odorless and has a sweetish taste. It is very soluble (1:0.8) in water and freely soluble (1:5.5) in alcohol. Sodium salicylate is preferably administered in solution or in gelatin capsules. The widely used compressed tablet if given on an empty stomach may act as an irritant, producing nausea and occasionally vomiting. A mixture of sodium salicylate with sodium bicarbonate in the form of an effervescent draught is an acceptable method of administering the salt. The following prescription may be used for a mixture of this kind:

		gm.	
℞	Acidi salicylici............	10	ʒ iiss
	Sodii bicarbonatis..........	20	ʒ v

Misce et fac chartulas xx.

Sig.: Dissolve the contents of one paper in a glass of water and drink as effervescence is about completed.

If an effervescent mixture is not desired it may be directed to be dispensed in the form of a "shake" mixture with water; care should be taken to have it recently prepared, as the alkali tends to decompose the sodium salicylate on standing.

Methylis Salicylas.—Methyl Salicylate, U. S. P.

An ester of salicylic acid ($CH_3C_7H_5O_3$) which occurs in oil of sweet birch and oil of wintergreen, or which may be produced synthetically, the products from the three sources being identical. Up to the present time there is no reliable method of differentiating between them.

Pure methyl salicylate is a colorless liquid having a characteristic strongly aromatic wintergreen odor and a sweetish, warm, aromatic taste. It is nearly insoluble in water but is miscible in all proportions with alcohol and the fatty oils.

For internal use methyl salicylate or either of the natural oils is best directed to be dispensed in capsules. It is also readily absorbed from the skin and is frequently applied in the form of a liniment. A type prescription for this kind of application is the following:

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* Owing to lack of space, a part of the materia medica of this group has been omitted from The Journal. It will be included when the series is published in book form.

	c.c.	
℞ Methylis salicylatis		flʒ xii
Linimenti saponis........āā	50	

M. Sig.: Use as a liniment.

The soap liniment in the foregoing formula may be replaced by one of the fatty oils like olive oil, or, if an additional counter-irritant is desired, by chloroform liniment.

Betanaphthol.—Betanaphthol, U. S. P.—Naphthol.

Beta-hydroxy-naphthalene ($C_{10}H_7OH$) is a monatomic phenol occurring in coal-tar, but usually prepared by treating naphthalene with sulphuric acid and subsequently decomposing the naphthalene sulphonic acid thus formed.

Betanaphthol occurs as colorless or pale-buff-colored crystalline scales or a crystalline powder having a faint phenol-like odor and a sharp pungent but not persistent taste. It is only slightly soluble (1:950) in water but very soluble (1:06) in alcohol. For internal administration it is usually directed to be dispensed in the form of powder or capsules, preferably in combination with bismuth subnitrate or bismuth subcarbonate.

	gm.	
℞ Betanaphtholis	1	gr. xv
Bismuth subnitratis.........	10	ʒ iiss
Misce et fac chartulas xx		

Sig.: One powder before meals.

For use as an antiseptic, protective ointment it may be prescribed as follows:

	gm.	
℞ Betanaphtholis	2	gr. xxx
Petrolati	30	℥ i

M. Sig.: Use externally.

URINARY ANTISEPTICS AND DISINFECTANTS

HEXAMETHYLENAMIN

Numerous balsams, oleoresins and volatile oils were used formerly as antiseptics for the urinary tract, but these have been almost entirely superseded of late by hexamethylene-tetramin, or, as it is officially known, hexamethylenamin, which is sold under a great many different trade names, including urotropin, formin, aminoform, formamin and many others.

Hexamethylenamin is not actively antiseptic, but it is decomposed in acid urine with the liberation of formaldehyd, which is the active agent. Hexamethylenamin has no antiseptic action in the tissue fluids or in neutral or alkaline urine. Strongly acid urine liberates the formaldehyd much more effectively than does feebly acid urine; hence it is better to use even small doses of hexamethylenamin while adopting measures to insure marked acidity of the urine than to use large doses of the drug while the urine is alkaline or only feebly acid. The acidity of the urine can be increased by the use of acid sodium phosphate (NaH_2PO_4). Note that this is not the official sodium phosphate[5] U. S. P. VIII, which is disodium phosphate (Na_2HPO_4).

Since the disinfectant and antiseptic activity of hexamethylenamin depend on the liberation of formaldehyd by acid mediums, it is obvious that it can have no material antiseptic value in the spinal fluid during spinal meningitis. Large doses were used for this purpose after it had been observed that hexamethylenamin is secreted into the spinal fluid.

It is obvious that the hexamethylenamin should not be decomposed before it reaches the urine; hence acids and acid salts, including monosodium phosphate, and acetylsalicylic acid, should not be mixed with it, even though they are used simultaneously.

Hexamethylenamin is used to prevent the growth of micro-organisms in the urinary tract, and to destroy them when they are present in the urine during infectious diseases such as typhoid fever.

It is used as an antiseptic in cystitis and as a prophylactic in operations on the urinary tract. It is sometimes used to prevent nephritis in scarlet fever, but very large doses cause albuminuria.

A solution of formaldehyd is a solvent for uric acid, and on this basis hexamethylenamin has been used to dissolve calculi; but it is practically useless for that purpose.

It is one thing to hold a substance in solution or prevent its precipitation when one uses a concentrated solution of formaldehyd, and quite another matter to dissolve calculi in weak solutions such as one may secure in the urine.

Hexamethylenamin is sometimes used in infections of the respiratory tract, but formaldehyd can be applied directly in such cases and there is no evidence that hexamethylenamin has any value in such conditions.

DOSAGE

Hexamethylenamin is frequently administered in doses of 0.3 gm. (5 grains), though many practitioners prefer much larger doses, from 1 to 2 gm. (15 to 30 grains) being administered three or four times a day to patients who do not manifest the unpleasant secondary symptoms that are sometimes caused by it.

MATERIA MEDICA *

Hexamethylenamina.—Hexamethylenamin, U. S. P.

This preparation is known and used under a variety of trade names, and in foreign pharmacopeias is generally recognized by its chemical title, hexamethylenetetramin $(CH_2)_6N_4$, a product formed by the condensation of ammonia and formaldehyd with the elimination of water.

Hexamethylenamin occurs as colorless, lustrous, odorless crystals having, when in aqueous solution, an alkaline reaction on red litmus paper. It is freely soluble (1:1.5) in water, and soluble (1:10) in alcohol. Hexamethylenamin is incompatible with acids, acid salts and combination acids like aspirin, which react with it and liberate formaldehyd. It is also incompatible with salts of ammonia, from which it separates ammonia. To avoid possible decomposition it is best administered by itself either in simple solution or in the form of powder, capsules or cachets.

Argenti Nitras.—Silver Nitrate, U. S. P.

Silver nitrate is a germicide of extraordinary activity against the gonococcus. Solutions of from 1:10,000 to 1:2,000 have been used for injection into the urethra and solutions of 1:5,000 into the bladder, but even dilute solutions are irritant to the urethra, and silver nitrate has been largely replaced in recent years by the less irritant organic silver compounds.

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5. Jordan, Anson: Urinary Antiseptics, Brit. Med. Jour., Sept. 13, 1913, p. 648.

* Owing to lack of space the materia medica of copaiba and oleum santali has been omitted from The Journal. It will be included when this series is published in book form.

Surfaces should be cleansed before applying the solution, the action of which may be stopped at once by applying a solution of sodium chlorid which precipitates the insoluble silver chlorid. This should be borne in mind when solutions are prepared, and only distilled water should be used for the purpose.

Silver nitrate has come into wide-spread use for treating the eyes of the new-born to prevent infection, especially where there is reason to fear gonorrheal conjunctivitis. Immediately after the head appears on the perineum the face is wiped clean and a drop of 2 per cent. solution of silver nitrate is dropped into each eye.

It is used in various forms of conjunctivitis but it should not be used indiscriminately, as it is capable of doing much harm when used in unsuitable conditions.

Some other uses of silver nitrate will be discussed when the astringents are considered.

Protargol, or silver proteinate, contains 8.3 per cent. of silver combined with albumin. It is used as a non-irritant substitute for silver nitrate in gonorrhea and in diseases of the eye, nose and throat.

Dosage.—Silver nitrate is used in solutions varying from 1 : 50 to 1 : 10,000. Protargol is used in solutions up to 20 per cent. The solutions of the latter are best prepared by sprinkling the protargol on the surface of the required amount of water and allowing it to dissolve spontaneously.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 1075)

XXV

Cerebrospinal Fever

EPIDEMIC CEREBROSPINAL MENINGITIS; SPOTTED FEVER

This disease occurs in epidemic and sporadic forms, the latter form being often difficult to diagnose. The epidemics are generally small in number of affected persons and more or less localized. While young children and young adults are most often attacked, it occurs not infrequently in camps, or in other groups of closely associated individuals. Hardship, privation, exhaustion and poor sanitation seem to allow it to occur. The sporadic form is always more or less present in most cities, and so-called "basillar meningitis" is doubtless generally this disease. Some epidemics in cities show a large number of very young children affected by it. Epidemics appear, both in this country and in Europe, most frequently in the winter and spring months, and the greatest number of sporadic as well as epidemic cases occur during March, April and May.

ETIOLOGY

The cause of epidemic cerebrospinal meningitis is the *Diplococcus intracellularis meningitidis*, also called meningococcus, which was first described by Weichselbaum, in 1887. These cocci are found in the spinal fluid. In appearance they are very much like gonococci, and lie in pairs either in or near the leukocytes. These germs are also found in the secretions of the nose and nasopharynx. They have been found in the blood stream, in the lungs, in the joints, and in other parts of the body. The meningococcus is of low vitality and is readily killed by sunshine, drying and by freezing; therefore, with ordinary precautions the danger of contagion is slight. As in so many other diseases, carriers of this germ have been found, and they probably play a considerable part in the spread of epidemics and in the occurrence of sporadic cases. In those suffering from this disease the germ has also been found in the conjunctiva, and even in the pleura, and the meningococcus has been found in some instances[1] in the lungs of those who have had pulmonary inflammations without meningitis. The frequency with which this germ has been found in contacts has greatly varied, Goodwin and von Schelly[2] having found it in the nasal secretions in as many as 10 per cent. of contacts.

The way in which these germs in the nasopharynx reach the meninges and cause cerebrospinal fever has long been discussed. It seems probable, as they are early found in the blood, that the blood stream is the method of conveyance, although the possibility, especially in young children, of their reaching the meninges through the sphenoidal sinuses and first causing perihypophysial inflammation has been long considered and discussed. It is also possible that the blood may spread the infection from the bronchial mucous membrane.

Flexner[3] produced meningitis in monkeys by injecting the infection intraspinally, though injections into the blood by other investigators had not caused the disease.

From these facts meningococcus cerebrospinal meningitis should be made a reportable disease, whether occurring in sporadic or epidemic form, and carriers should be sought, and when discovered, isolated and treated.

SYMPTOMATOLOGY

The disease generally begins suddenly, although there may be such prodromes as aches and pains, especially in the head, with a general feeling of weariness. Soon the headache becomes intense, and most severe in the back of the head. This headache is accompanied by fever, generally there is vomiting, and there may be early, in fulminating cases, delirium and stupor. Soon there is pain in the back of the neck, with more or less stiffening of the muscles, and tenderness and pain along the spine. Pain in the extremities and body occurs, stiffening of muscles or groups of muscles, and convulsive movements may be present. Deafness is a frequent symptom. Ringing in the ears may be present. The vision may be disturbed. The disease may be so rapid as to cause death within twenty-four hours or even less, but the usual duration is from two to four weeks. Even when the disease is protracted six weeks or more, death may still occur. In prolonged cases a peculiar intermittency or remission of symptoms often occurs.

Herpes frequently occurs on the mouth or face. The frequent occurrence of petechiae has given this disease the name of "spotted fever." Other eruptions, of urticarial type principally, often occur. The spleen is generally enlarged; the appetite is almost absolutely lost; there may be very obstinate constipation, rarely diarrhea. Albuminuria may occur; there may be polyuria or sugar may be found in the urine from irritation of the central nervous system. In some instances there is inability to void the urine, not infrequently due to the administration of opiates for the severe pain.

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[1] Jakobitz: Ztschr. f. Hyg. u. Infections krankh., 1907, lvi, 175.
[2] Goodwin and von Schelly: Jour. Infect. Dis., 1906, p. 21.
[3] Flexner: Jour. Exper. Med., 1907, ix, 142.

The height of the fever, while generally indicating the intensity of the disease, does not always do so, as a serious and dangerous attack may be accompanied by but little fever.

There is hardly any part of the body that may not show a complication from this disease. The most frequent complications are, perhaps, pleuritis, pericarditis, pneumonia and arthritis. Inflammations of the parotid glands and of the kidneys are not infrequent. Acute and permanent disturbances of the special senses, due to localized inflammations in different parts of the cerebrum, are not infrequent.

The *prognosis* has varied enormously in different epidemics, said to be from 20 to 75 per cent. With the serum therapy offered by Flexner and his co-workers this mortality has been very greatly reduced. In young children the mortality is greater than in adults. Even when the symptoms apparently ameliorate, the prognosis should be guarded, as many times a dangerous exacerbation occurs.

DIAGNOSIS

As the success of treatment in this disease depends so much on an early and immediate diagnosis, and the diagnosis is many times so difficult except by expert methods, it is essential, in discussing the therapy of this disease, to insure that the diagnosis is correct. This whole subject has recently been very ably discussed by Du Bois and Neal[4] of New York. These physicians, specializing in the clinical and laboratorial findings in this disease, are able to present valuable statistics. They have examined 992 cerebrospinal fluids, and state that the conditions to be differentiated from meningococcic meningitis are streptococcic and pneumococcic meningitis, that due to the *Streptococcus mucosus capsulatus,* influenza, tuberculous meningitis, poliomyelitis and meningismus, particularly when it occurs in pneumonia.

There is always a leukocytosis in this disease, ranging from 25,000 to 40,000 per cubic millimeter. This leukocytosis is found early, and persists during the activity of the disease. Hess[5] of Chicago found that the relative numbers of neutrophils and lymphocytes varied from time to time in this disease. He found that the eosinophils disappeared early in the infection and did not recur until convalescence was established. As sporadic cerebrospinal meningitis cases are often difficult to diagnose, and they many times simulate typhoid fever, besides the absence of a Widal reaction, a leukocytosis would preclude typhoid fever. Also, leukocytosis is not present in intermittent fever, and quinin should not be administered in meningitis; hence, an examination of the blood, by showing absence of malarial plasmodia and the presence of a leukocytosis would show the disease not to be malarial fever.

Meningismus is a condition now recognized as occurring not infrequently in serious illnesses, especially in children. It is most frequently seen in pneumonia, gastro-enteritis, and typhoid fever. While the cerebrospinal pressure may be increased in this condition, there may be no germ invasion, and no real inflammation, and though many meningeal symptoms may be present, they may all rapidly improve. The subject of meningismus is also discussed by Du Bois and Neal.[4]

Du Bois[6] states that the rigidity of the neck of infants in epidemic cerebrospinal meningitis is many times so easily overcome as to make one doubt its existence, but when the infant is turned on its side, the head is seen to be markedly retracted. Du Bois and Neal consider that the most important signs of meningitis are stiffness of the neck, variations of regularity in the rate and depth of respiration and MacEwen's and Brudzinski's signs. "MacEwen's sign is that which shows a change in the percussion note over the lateral ventricles due to increased intraventricular pressure;" while "Brudzinski's sign consists in the flexion and eversion of the legs and arms when an attempt is made to flex the head on the chest." Irregularities of the pupils, conjunctivitis, strabismus and nystagmus are all important signs of meningitis. Very young infants may show a bulging fontanel. Conjunctivitis is common in epidemic cerebrospinal meningitis, but these investigators find that it is rare in other meningeal conditions. Ptosis of the eyelids and strabismus they find more common in tuberculous meningitis. The so-called Biot's breathing, that is, markedly irregular respirations, both in depth and time, they find present in true meningitis. Cheyne-Stokes respiration is more frequent in tuberculous meningitis, and the pulse is more likely to be irregular in rate and volume in this than in other meningeal conditions. Paralysis they find infrequent in epidemic cerebrospinal meningitis, frequent but transitory in tuberculous meningitis, and always present in real poliomyelitis. The temperature is irregular in cerebrospinal meningitis; generally low in tuberculous meningitis; has a high rise and drops quickly in poliomyelitis.

The petechial eruption of so-called spotted fever they found to occur but infrequently, they having found it only sixteen times in 112 cases. On the other hand, herpes is frequent.

N. P. Barnes[7] of Washington states that he has frequently found, in true cerebrospinal meningitis, that a rash could be caused by directing an electric light and reflector on any portion of the body. He has found this sign absent in other forms of meningitis. He also calls attention to the fact that he has noted dilatation of the pupils produced in all his cases when Kernig's sign was being elicited. Kernig's sign alone was found by Du Bois and Neal not to be important in young children.

Conner and Stillman[8] of New York made a study of the respiratory irregularities of meningitis, and especially of Biot's "meningitic rhythm," which rhythm lacks the regular alternation periods seen in the Cheyne-Stokes type of respiration. These investigators found that Cheyne-Stokes breathing occurred in 53 per cent. of all cases of meningitis, and in 63 per cent. of all cases in children, and it was much more frequent in tuberculous meningitis. They found that "Biot's breathing, when it occurs, may be regarded as almost pathognomonic of meningitis," while the Cheyne-Stokes type they found to be of no special diagnostic value in adults, but in children, if associated with other suggestive symptoms, it points decidedly toward meningitis.

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[4] Du Bois, Phebe L., and Neal, Josephine B.: Summary of Four Years of Clinical and Bacteriologic Experience with Meningitis in New York City, Am. Jour. Dis. Child., January, 1915, p. 1.

[5] Hess, Julius H.: Leukocyte Counts in Pneumonia and Cerebrospinal Meningitis, Am. Jour. Dis. Child., January, 1914, p. 1.

[6] Du Bois, Phebe L.: Differential Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis, THE JOURNAL A. M. A., March 15, 1913, p. 820.

[7] Barnes, N. P.: Interstate Med. Jour., 1913, xx, 9.

[8] Conner, Lewis A., and Stillman, Ralph G.: A Pneumographic Study of Respiratory Irregularities in Meningitis, Arch. Int. Med., February, 1912, p. 203.

Of course the most important diagnostic determination is made by spinal puncture. It may be well first to note that Dixon and Halliburton[9] have recently investigated cerebrospinal pressure. After hemorrhage they find a fall in this pressure. They found that variations in cerebrospinal pressure alter the cerebrovenous pressure. They experimented also with various drugs, and found that suprarenal pressor substance affected the cerebrospinal fluid only indirectly, and that the cerebrospinal pressure falls more rapidly than the blood pressure. There is a rise in spinal pressure after the administration of amyl nitrite. They found that deficiency in oxygen or an increase in carbon dioxid in the blood raised the cerebrospinal pressure. In other words, they concluded that there may be constant variations in the amount of the cerebrospinal fluid and consequently the cerebrospinal pressure, due to different conditions of the circulation, but that the amount of change was insignificant compared with that caused by secretory activity of the walls of the cerebrospinal canal.

The Lange gold chlorid reaction of the cerebrospinal fluid of infants and young children as giving evidence of cerebrospinal disease, and especially of syphilis, has been recently tried in over sixty children, by Grulee and Moody[10] of Chicago, who give their technic, but from their findings come to the conclusion that the test is only an aid in diagnosis.

In spinal puncture Du Bois and Neal find that "a clear fluid increased in amount indicates usually one of the following conditions: tuberculous meningitis, poliomyelitis, syphilitic involvement of the central nervous system, brain tumor, or meningismus. A cloudy fluid is the result of a meningitis due to the meningococcus or some of the other pyogenic organisms." As above suggested, in meningismus there is increased cerebrospinal fluid, but it is normal in character. The amount of fluid withdrawn by Du Bois and Neal has varied greatly; they have withdrawn as much as 100 c.c. "In a true meningitis the fluid is inflammatory in character—of the nature of an exudate, and shows an increase in albumin and globulin, and in the number of cells." In meningismus they consider the increased fluid as a transudate. With a cloudy fluid and the finding of the meningococcus, the diagnosis of so-called cerebrospinal fever is positive.

PREVENTION

In the first place, it may be mentioned that rarely it has been noted that the disease has attacked an individual more than once. In the second place, carriers have become more or less immune, but it is self-evident that, having been discovered, although close contact is needed, and though the germ is not sturdy and is readily killed after leaving the body, they must be isolated and treated. Therefore, the persons immediately surrounding a case of meningococcic meningitis should have the secretions of the nose and nasopharynx examined for this germ. It has not been shown just what local treatment of the nose and throat of these individuals is advisable, but antiseptic sprays, swabbings and gargles are certainly indicated.

Vaccinations, with dead meningococci, of children who have been directly exposed to the disease, and of the nurse or other persons, who must care for cerebrospinal fever patients would seem to be advisable in preventing the spread of the disease. It has been suggested that a moderate amount of immunity would be sufficient to prevent this particular infection. How long immunity would last is not known. Vaccination with this germ causes a febrile reaction, with leukocytosis. Meningococcus vaccines are now prepared, and can be readily obtained. Sophian and Black[11] have discussed this subject. Meningococcic vaccine has been injected, and antimeningococcic serum has been sprayed into the noses and throats of carriers, with some success. It has not been shown how constantly this treatment is successful.

TREATMENT

It is hardly necessary to urge that the disease should be made reportable, and be reported as soon as the diagnosis is positive. A patient with any primary meningitis should be more or less isolated until the germ of infection has been determined.

Flexner has given us a specific treatment, and the method to be followed in its administration cannot be better described than by once more referring to Du Bois and Neal.

If the fluid taken from the spinal canal is cloudy, they immediately inject antimeningitis serum, warmed to the body temperature, and injected slowly. They consider a syringe as dangerous, and adopt Koplik's gravity method. They state, in general, that the dose for an adult is from 20 to 40 c.c., and for infants and children from 3 to 20 c.c., the amount largely depending on the quantity of fluid withdrawn, and the dose should usually be from 5 to 10 c.c. less than the amount of fluid withdrawn. They state that occasionally in true meningococcic meningitis they have obtained no fluid from the canal in spinal puncture, so-called dry tap. In such cases they have injected a small amount of the antiserum, with careful watching of the patient to note changes in pressure as determined by the character of the pulse and respiration. In severe cases they inject the antiserum every twelve hours until there is improvement. In moderate and mild cases they usually repeat the injection once a day for four days. The bacteriologic findings of the fluid withdrawn at the last injection, and the condition of the patient, determines whether the antiserum should be given longer. They state that usually from four to six injections are necessary, but they have given sixteen or more. On successive punctures and injections the patient is turned first on one side and then on the other, which they think insures the emptying of the lateral ventricles in rotation. In other words, a patient who lies on his right side for one puncture will be placed on his left for the next.

A number of times they have seen the patient go immediately into a condition of shock after the injection of the serum, with the respiration shallow, the face pale, and the pulse rapid and thready. They have never, however, seen a patient die in this condition, and if the needle is still in place they withdraw some of the serum. Artificial respiration is resorted to if the breathing has ceased, and hypodermic stimulation of the heart is given. This condition of shock does not occur frequently with the smaller doses that are now administered. The serum they have lately used contains 0.2 per cent. of trikresol, and as they have used trikresol serum over five hundred times in patients of all ages, they do not believe that fatalities are due to the phenol contained. However, on account of objection having been made to trikresol, they are ready to try chloroform as a preservative.

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[9] Dixon and Halliburton: Jour. Physiol., 1914, xlviii, 128.

[10] Grulee, C. G., and Moody, A. M.: The Lange Gold Chlorid Reaction on the Cerebrospinal Fluid of Infants and Young Children, Am. Jour. Dis. Child., January, 1915, p. 17.

[11] Sophian, Abraham, and Black, J.: Prophylactic Vaccination Against Epidemic Meningitis, The Journal A. M. A., Aug. 17, 1912, p. 527.

Barnes[12] states that antimeningococcus serum differs from ordinary antiserums in that it is destructive to the meningococci, and at the same time neutralizes the endotoxins set free during the destruction of the germs.

If a case of cerebrospinal fever shows a tendency to become chronic, Du Bois and Neal make an autogenous vaccine and give it every four or five days, "in doses of from 250 to 1,000 million" bacteria. They are not convinced of the value of this treatment, but they have not seen it do any harm.

The general treatment of cerebrospinal fever demands the best hygienic surroundings obtainable, and a quiet, cool, darkened room, as in any meningitis. The bowels should be thoroughly moved in the beginning, and then, daily, or every other day, the patient should receive a laxative, if needed.

As the vomiting is reflex, stomach sedatives are of no avail. As the central condition is improved or the patient becomes more stupid, the vomiting will cease. Food in the early stages should not be pushed, as there is great repugnance to it. Plenty of water, and later simple cereal gruels and milk should be the early diet. The subsequent diet should depend on the height of the fever and the ability of the patient to digest. In the stage of convalescence food should be pushed, if it is well digested. Through the acute illness, starches should be given to prevent acidemia. If the pain is sufficient to require sedatives, much food should not be given, as it will not well digest.

A most important symptom of this disease is likely to be pain, and there is no excuse for allowing a patient, because it is a young child, to suffer pain. Morphin or codein represent the most efficient and the safest drugs, the dose, of course, being regulated according to the age of the patient and the effect. Generally it is better to administer a very small dose hypodermically than a large dose by the mouth; the action of the whole dose is obtained, and there is no doubt as to whether or not it is absorbed. Ergot given in aseptic form, intramuscularly, not only seems to act as a sedative to the nervous system and possibly diminishes congestion, but it certainly prolongs the action of any dose of a narcotic. Less morphin, codein or other narcotic will be required to stop pain and cause rest if ergot is coincidently given. If the blood pressure is low, this is another indication for the administration of ergot. Generally, if the blood pressure is high, ergot should not be given.

Local applications of cold and ice to the head (the hair being cut short) and to the spine, may inhibit the inflammation, and sometimes seem to be of great value. At other times these cold applications seem to increase the pain. This seems to be especially true if the temperature is low. Exactly what these cold applications do to the blood vessels of the parts inflamed is a question that has not been determined. Cold sponging of the body is hardly advisable, as it tends to increase the internal congestion. Theoretically, it would seem more sensible, and practically it is often better to use hot applications, as hot sponging, and even hot baths have been advised, for very young children, to relieve the congestion of the central nervous system.

Painful joints may be wrapped in cotton and kept warm, much as is done in rheumatism. Conjunctivitis should be treated with a simple boric acid wash. The throat and nose should be cleansed with simple saline sprays or mild antiseptic gargles.

There would seem to be no excuse for the administration of quinin, strychnin, caffein, or any other cerebral stimulant. It would also seem inadvisable to administer alcohol in any form. If the blood pressure is high, hot sponging, small doses of nitroglycerin and more brisk catharsis are indicated.

The patient should remain in bed for at least a week after the cessation of the fever, and convalescence should be slow, and the return to activity should be delayed. During convalescence it is well to administer small doses of sodium iodid, as iodid seems to be efficient in aiding the absorption of exudates. Iron and other tonics may be indicated.

Stiffening of the muscles and joints may require massage, and, if there are any adhesions in the joints, the orthopedist should be consulted as to whether passive movements or forcible breaking up of these adhesions under an anesthetic is advisable.

The frequency with which mental deterioration occurs can only be determined by a long careful study of many cases. Cerebral degenerations and disturbances may develop after many years and yet apparently have been caused by this disease.

The various complications that may occur have already been mentioned, and their treatment would be that usual for the localized inflammation modified by the general condition of the patient from the cerebrospinal fever.

INFLUENZAL MENINGITIS

That the *Bacillus influenzae* can cause meningitis has long been known. It has been well described by Rhea[13] of Montreal. The serum treatment of influenzal meningitis was presented by Wollstein.[14] Dr. Flexner has produced an anti-influenzal serum which may now be used in this disease. The success of such treatment has not yet been determined.

A brief but careful review of recent literature up to about a year ago, on meningitis other than that of cerebrospinal fever, has been presented by Heiman and Feldstein.[15]

(To be continued)

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[12] Barnes: Interstate Med. Jour., 1913, xx, No. 9.

[13] Rhea, Lawrence J.: Cerebrospinal Meningitis Due to Bacillus Influenzae, Arch. Int. Med., August, 1911, p. 133.

[14] Wollstein: Jour. Exper. Med., 1911, xiv, 73.

[15] Heiman, Henry, and Feldstein, Samuel: Résumé of the Recent Literature on Meningitis (not Including Meningococcus Meningitis), Am. Jour. Dis. Child., September, 1913, p. 199.

Distinctive Poison-Containing Bottle.—R. J. Lackner has invented a bottle to contain poisons which will give warning of its dangerous contents every time the bottle is opened. The device consists in a specially constructed cork containing a highly odoriferous substance the odor of which escapes immediately the cork is removed from the bottle and warns not only the person opening the bottle, but those in the immediate vicinity. By this means Lackner believes many lives would be saved that are now sacrificed by the mistake of getting hold of the poison-containing bottle.

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SATURDAY, APRIL 3, 1915

CLIMATE AND THE DISTRIBUTION OF PLAGUE

Epidemiology often affords unique instances of immunity to disease that call for careful inquiry to explain them. The freedom of certain areas from invasion by infections which have devastated neighboring regions is frequently a phenomenon that, when understood, will reveal secrets of importance in respect to the implantation of disease. An instance of what is here referred to is found in certain parts of India. Although much of that country has suffered severely from the plague, the Madras Presidency has been affected to a relatively slight degree. To account for this immunity has been one of the many problems confronting the British commission appointed to deal with the plague in India. The ninth report,[1] just issued by the advisory committee appointed by the secretary of state for India, the Royal Society of London and the Lister Institute, deals with this subject.

As a starting point it must be emphasized that the evidence that in India bubonic plague is determined by the simultaneous occurrence of the disease among rats, and that the rat flea is the agent whereby the virus is transported from rat to man, is overwhelming. It became important, therefore, to determine whether the conditions in Madras as regards rats, fleas and allied factors were such as to be unfavorable to the spread of the plague; or whether certain districts had escaped because the infection could not easily reach them. A comparative examination of rats and fleas found in severely or moderately infected areas and in the plague-free districts of the Madras Presidency has shown that in none of them, in the light of the commission's experience elsewhere, was the number of the rodents and their parasites too small to permit the development of an epidemic among them.

From the fact that severe epidemics have occurred in localities in which the rats and fleas are far less numerous than in the places which have escaped infection, it must be assumed that other factors account for the comparative deficiency in rats and fleas. The immunity can scarcely be due to a lack of susceptibility to plague in the case of rats caught in the places that have been free from plague epidemics; for, as a matter of fact, actual investigation has shown that the rats caught in the plague-free districts are extremely susceptible. It is not unlikely that during the course of a succession of severe plague epidemics in a place, a race of rats is ultimately established, the individuals of which are comparatively immune to the disease. This is probably brought about by the destruction of susceptible rats in the recurring epidemics and the survival of the more immune which are capable of transmitting their immunity to their offspring. The existence of highly susceptible rats in the Madras district may be interpreted to mean that the areas in which they are found have long escaped the plague.

The India Plague Commission is inclined to the belief that the physical features and climate of the Madras Presidency are the important influences in limiting the distribution of the plague in it. When rat fleas are separated from their host, they speedily succumb to the combined effects of a high temperature and drying. The seasonal variations in the number of fleas caught on rats is in accord with the effect of climatic factors on the insects. Unfavorable conditions are found in the hot and dry plains, in contrast with the cooler and moister sea-coast districts. As plague is carried from place to place in the bodies of infected fleas, any local conditions affecting the survival of these insects apart from a host are of importance in determining the liability of the neighborhood to plague. Even when infected rats are transported from place to place, there is nevertheless an interval when infected fleas are separated from their host before they may find access to man, during which they are subject to prevailing climatic conditions. Plague-free Madras may thus owe its comparative immunity in part to the warm climate obtaining over the greater part of the presidency. Invasion is further restricted by the fact that a low-lying comparatively hot and dry plain separates the areas at present infected from the more humid and cooler coastal regions, especially in the north of the presidency. In certain years, especially when the temperature has been lower and the humidity higher than normal, plague has extended to the places immediately adjacent to more commonly infected areas. There is, however, little tendency for the plague to flourish in places beyond its usual limits.

The districts which have suffered most resemble each other in being the most elevated and coolest regions of the presidency; but they also have the characteristic in common that they are in closest proximity to infected areas outside the Madras Presidency. It is not intended to overlook the fact that a number of circumstances, some more, others less favorable to the development of the disease, are usually at work together. Meteorologic conditions which are believed to have such a large influence on the duration of life of the rat flea when separated from its host, so that a cool, moist atmosphere often allows it to survive ten times as long as in hot dry air, can no longer be overlooked. Evidently fleas would have some difficulty in arriving alive at any place which was surrounded by a zone of country in which a high temperature, especially in conjunction with a low humidity, continuously prevailed. On the other hand, traffic conditions are certainly not without some bearing in the distribution of the plague.

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[1] Ninth Report Issued by the Advisory Committee Appointed by the Secretary of State for India, the Royal Society of London and the Lister Institute, Jour. Hyg., Plague Supplement IV, 1915. The results of a preliminary inquiry were published as the seventh report, supplement to the Journal of Hygiene, 1912.

It is difficult to estimate the relative importance of the facilities afforded for the transport of insects from infected to uninfected localities and the climatic agencies. Probably they have unlike significance in different places. According to the latest India plague report, the extraordinary susceptibility of Madras rats to plague, in conjunction with the absence of any historical record of the disease in this part of India, suggests that the present immunity of the province is not exceptional and that the Madras Presidency has escaped plague not altogether because of the measures which have been adopted to prevent its spread during the present pandemic, but largely owing to climatic or other peculiarities.

IMPROVEMENT OF MEDICAL CONDITIONS IN CHINA

THE JOURNAL last year announced the appointment of a commission by the Rockefeller Foundation to study medical and health conditions in China. The report of this commission has just been received. A casual review of it reveals vividly the tremendous need for better medical, hospital and nursing service in that country. The commission believes that better medical teaching is the first step, and with that idea it studied carefully existing medical schools. Seventeen schools were visited, together with various universities and secondary schools, both missionary and governmental, and a large number of hospitals. Everywhere the lack of funds, personnel and equipment for effective work was apparent. In only one or two medical schools was there anything that resembled adequate teaching facilities. The central government maintains schools at Peking and Tientsin, and there are government-supported schools in some of the provinces. Missionary medical schools are found in almost every province. These were started as dispensaries and hospitals, and the necessity for native assistants, as the work grew, led to the training of young men for such purposes, and finally some of them were educated in medical science by the hospital physicians. In only a few places, likewise, were adequate hospitals found, but many, mostly under missionary management, were doing good work under great difficulties. The report emphasizes that the need for medical work in China is great, and the opportunities for progress in all lines are equally great.

Though there is opposition in some quarters to western medical methods, this is rapidly breaking down, and the objects of the commission were approved by officials and prominent citizens in all the places visited. The commission recommends that the foundation undertake medical work in China in cooperation with missionary and other existing institutions; that a high standard be maintained for medical instruction, which should be in the English language; that the time is not ripe for large public health work on account of lack of suitably trained men, though existing hospitals should be assisted and two model tuberculosis hospitals established; that the first educational work organized should be at Peking, if possible in connection with the existing Union Medical College; that the Christian College for medical education at Canton and the Yale Mission at Changsha should be assisted, and that the two competing medical schools at Shanghai, both under American auspices, should be made over into a single institution. Other recommendations refer to fellowships, scholarships, the development of hospitals, the training of nurses in the hospitals aided by the foundation, and the training of a few selected women in the United States. The requirements of the situation are so great that the development of effective service will be the work of years.

The report is a record of a splendid piece of work, accomplished in a comparatively short time, by a body of experts happily selected for the task. It is a document of great human as well as medical interest in the picture which it reveals of conditions in an awakening country.

TYPHOID FEVER IN THE PHILIPPINES

There are statistics available to indicate that typhoid fever is somewhat more prevalent in certain parts of our insular possessions in the Far East than it was in former years. It would probably be overhasty to say that the disease is on the increase. At the Philippine General Hospital in Manila there was a fairly uniform relationship of the number of typhoid patients admitted to the total admissions, during 1911 and 1912. During the first half of the year 1913 there was a marked increase. The factors concerned are not easy to detect; for it is doubtless true that the people concerned are becoming more accustomed to hospitalization, and the incidence of a severer type of malady like typhoid may thus indirectly come more prominently to our attention. We are reminded in any event that the importance of recognizing the incidence index of typhoid fever in the Philippines cannot be overemphasized, because once this infection gains a foothold, it will be difficult to eradicate owing to the peculiar environment and poor hygienic conditions under which most of the people live.

It is desirable to learn more about the clinical characteristics and mortality of the disease among the native inhabitants of the tropical countries than is known at present. Interest attaches, therefore, to a summary by Dr. Gutierrez[1] of the conditions observed in the large government hospital at Manila, where most of the cases of typhoid fever treated occur among native Filipinos. It is based on a study of 125 Filipinos out of a total of 137 cases admitted to the Philippine General Hospital during a period of a little less than two years.

In the Philippines there is noted the same seasonal incidence which is characteristic of typhoid in Europe and the United States, where the greatest prevalence is seen during the autumn months, continuing into the winter, and declining in the spring. The variation in seasonal distribution is perhaps not so marked; and in view of the limited series of cases, conclusions must be expressed with reserve. The sex incidence offers no features of novelty. The age incidence likewise corresponds in a general way with that observed in other countries.

With respect to the clinical features, Dr. Gutierrez points out that although the fever course of the typhoid seen in the Philippine General Hospital is essentially the same as in the United States and in Germany, the temperature is much lower and the fastigium is not so typical. This may account for the fact that delirium and the typhoid state are not so common as in other countries. Relapses occur about as frequently; abortive types appear to be rather common, and are often difficult to diagnose. For this reason, in the Philippines every continued fever with slow pulse and enlarged spleen should have a serum reaction and other confirmatory tests, along with blood culture in all cases of doubt.

Intestinal hemorrhages have occurred in nearly one-seventh of all cases. The only explanation suggested for this large number is the neglect of the gastro-intestinal canal consequent to delay among the Filipinos in receiving medical attention. Perforation is likewise common. Although the mortality seems high when the records are superficially examined, the peculiar conditions encountered must be borne in mind before evaluating the statistics. The Filipinos undoubtedly have a lowered resistance consequent on their modes of life and limited diet. Many patients come to the hospital in a hopeless condition and thus help to swell the death rate. We are assured, however, that as the diet of the natives is being improved and the cases are admitted to the hospital earlier in the course of the disease, a more normal death rate is being approached.

This is what may be expected in an institution which, during the few years of its existence, has worked so effectively for the relief of the sick in Manila and in the provinces, has contributed much to scientific medicine, has helped to raise the standard of hygiene and of medical practice in the Far East, and has abundantly justified the expectations of those who have confidence in the efficiency of American institutions.

THE RIPENING AND STORAGE OF CERTAIN FOODS

The fruits of plants and storage organs, such as roots and tubers, have always furnished a considerable component of the diet of mankind, and are therefore entitled to serious consideration in respect to their chemical composition and nutrient virtues, as well as from the point of view of their economic availability. Every one makes the distinction between ripe and unripe products of this sort in every day life; yet there is a surprising dearth of information in many directions as to precisely what the basis for such differentiation is. Why one variety of apples, picked in October, is deemed ripe and ready to be eaten raw, whereas another, growing in the same field, is designated as a "winter variety" which is unfit for consumption until several months later, unless it is cooked, is rarely considered by the consumer. The fact of a difference between fall and winter, or early fall and late fall varieties, has become associated in his mind with color, form, type and names — rarely with anything directly suggestive of a real chemical or biochemical basis for these distinctions.

In many of these plant products the act of ripening is attended by a process of real respiration, in which carbon dioxid is produced and given off with more or less vigor by the part involved. Usually this concerns primarily a conversion of insoluble carbohydrates into soluble sugars, which latter are then in part used up in the respiration functions. Ripening effects a loss in the total carbohydrate content of the fruit, for example, as well as an attendant development of soluble carbohydrates. Apples which are ripe early have developed a considerable content of sugar by transformation of starch, the content of which is correspondingly decreased. The unripe apple is relatively rich in starch and poor in sugars. The speed with which the ripening changes proceed varies widely with species and varieties of plants as well as with the temperature of the environment. They proceed apart from all connection with the original plant, as we commonly note when green fruit, prematurely removed from its vegetative connection, proceeds to ripen properly.

The United States Department of Agriculture has recognized the desirability of increasing our knowledge of what constitutes "ripening," as is witnessed by two investigations recently reported from the government laboratories at Washington.[1] With respect to the composition of bananas during ripening, they show that the most conspicuous change is the long recognized conversion of starch into sugars. It is most rapid while the fruits are turning from green to yellow. During this period, the respiration rate increases manyfold, becoming greatest at the time when the rate of starch hydrolysis is most rapid. Starch hydrolysis then gradually slackens, later ceasing altogether. Next to the starch and respiration changes, most conspicuous are those of water. The peel loses, while the pulp gains in water by a steady transfer of the latter to it from the peel during ripening. The quantities of protein, ether soluble and mineral matter, show little alteration during this process.

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[1] Gutierrez, P.: Typhoid Fever in the Philippines, Philippine Jour. Sc., (B), 1914, ix, 367.

Somewhat comparable changes take place during the storage of an entirely different food product, the sweet potato. The carbohydrate metabolism of this tropical form is different from that of the ordinary variety of potato. Sugar is developed far more readily, with the result that the storage of sweet potatoes is accompanied by considerable losses as a result of decay brought about by micro-organisms which invade the tissues. These destructive changes are not yet wholly preventable by any of the methods of storage in common use.

During its growth, the sweet potato root is characterized, according to Hasselbring and Hawkins,[1] by a very low sugar content. The reserve materials from the vines are almost wholly deposited as starch. Immediately after the roots are harvested, there occurs a rapid transformation of starch into cane sugar and reducing sugars. This initial transformation seems to be due to internal causes, and is largely independent of external conditions. Even at a temperature of 30 C. (86 F.), both cane sugar and reducing sugars accumulate during this initial period in excess of the quantity used in respiration, while during subsequent periods the quantity of reducing sugar diminishes at that temperature as a result of respiration. These initial changes seem to be associated with the cessation of the flow of materials from the vines. In sweet potatoes stored at a temperature of from 11.7 to 16.7 C. (53 to 62 F.), the moisture content remains fairly constant. There is a gradual disappearance of starch during the first of the season (October to March) and probably a reformation of starch accompanied by a disappearance of cane sugar during the latter part of the season (March to June). The changes in reducing sugar are less marked than those in cane sugar. The changes in starch and cane sugar appear in a general way to be correlated with the seasonal changes in the temperature. In sweet potatoes kept in cold storage (4 C., 39.2 F.), there is a rapid disappearance of the starch and an accompanying increase in cane sugar. These changes do not attain a state of equilibrium at that temperature, as the sweet potatoes invariably rot by the action of fungi before the changes have reached their maximum. At both high and low temperatures, cane sugar is the chief product formed by the conversion of starch in the sweet potato. The quantity of invert sugar in the root at any time is comparatively small.

To the casual observer it may seem like a matter of minor import to ascertain why sweet potatoes are sweet and what constitutes a really ripe banana. In these days when the limitations of the seasons are no longer allowed to set restrictions on the food demands of mankind, and when questions of effective economical methods of transportation and storage are seriously studied, it becomes essential for practical as well as theoretical reasons to unravel the details of the biologic processes involved.

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[1] Gore, H. C.: Changes in the Composition of Peel and Pulp of Ripening Bananas, Jour. Agricultural Research, 1914, iii, 187. Hasselbring, H., and Hawkins, L. A.: Physiological Changes in Sweet Potatoes During Storage, ibid., 1915, iii, 331. The earlier literature is reviewed in these papers.

THE STATUS OF A THERAPEUTIC AGENT IN DIABETES

The lactone or inner anhydrid of alpha-glycoheptonic acid (sold under the name of "hediosit"[1]) was introduced into the therapy of diabetes a few years ago by Prof. Georg Rosenfeld of Breslau, an investigator of carbohydrate metabolism. The features which seemed to recommend it, aside from its lack of toxicity and a very moderate degree of desired sweetness, were the alleged property of decreasing the glycosuria of the diabetic, along with some food value secured by the oxidation of the substance in the organism. The product appeared, therefore, to resemble glucose in its nutritive value, without exhibiting the lack of utilization experienced by the true sugars in diabetics. Hediosit has been fed in quantities of from 10 to 30 grams (3 drams to 1 ounce) per day without obvious untoward results, thus suggesting a means of supplying some energy in addition to antiglycosuric effects. Larger doses may lead to a laxative action.

The quantitative limitations in the use of this new product are such that at best it can replace little food in the dietary, and its value as an energy-yielding compound must be controlled by exact investigation. Studies by Lenel,[2] in Professor Umber's clinic at Charlottenburg-Westend, have an important bearing on the behavior of hediosit. Under normal alimentary conditions it was observed that upward of a quarter of the administered quantities is lost again in the stools. When a laxative effect is present, the loss in this way may amount to as much as 80 per cent. But the quantities remaining in the feces do not represent the entire amount escaping oxidation. The urine likewise contains some of the unchanged product. In some cases Lenel has administered the lactone intravenously in order to insure its entrance into the circulation. Under these conditions as much as 100 per cent. of the introduced substance has been recovered; and the recoveries after oral administration are likewise frequently very considerable, amounting to nearly half of the 20 grams administered.

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[1] New and Nonofficial Remedies, 1915, p. 144.

[2] Lenel, R.: Die Ausnutzung des Alpha-Glykoheptonsäurelaktons (Hediosit) beim Diabetischen und Nichtdiabetischen, Arch. f. exper. Path. u. Pharmakol., 1914, lxxvii, 335.

It had been hoped by the German investigators, following the experience of Abderhalden and others with parenteral introduction of other substances, to develop similarly the production of enzymes, which might be able to metabolize the lactone and thus lead to its more perfect utilization in the organism. As yet there is no evidence that this can be successfully done. In several cases there was an apparent failure to recover the usual large output of the lactone after its introduction intravenously during a series of days. A study of the urines showed, however, that the apparent utilization was due to a retention associated with deficient kidney function. With these suggested limitations in the dosage, as well as the capacity of the organism to oxidize the new compound, its nutrient value as a substitute for the untolerated sugar is exceedingly limited at best. The antiketogenic properties are debated; the antiglycosuric effects uncertain. In view of this, the major claims for what promised to be a useful therapeutic product remain to be more convincingly demonstrated.

Current Comment

PUBLIC EDUCATION IN MARYLAND

The organization of the Council on Health and Public Instruction of the American Medical Association, at the St. Louis meeting in 1910, was a definite recognition of the obligation on the part of the organized medical profession to educate the public, and to make its special and technical knowledge available as far as possible for the guidance of the people. Like all other activities of the American Medical Association this work can reach its highest development only through the coordinating and cooperating work of the state associations. For this reason, each state association was asked to establish a state committee on health and public instruction if it had not already done so, or to delegate this work to one of its existing committees. Many states are now taking up this work. Probably in no state has it been developed to any higher point than in Maryland, in which the work of the Committee on Public Instruction was early inaugurated and has been carried on vigorously and enthusiastically. In a recent issue of the *Bulletin of the Medical and Chirurgical Faculty of Maryland* appears an editorial review of the work of this committee for 1914. After stating that without question this work is one of the most important and valuable factors of the state association activities, attention is called to the health week held in Baltimore, with its accompanying public health exhibit, and to the smaller meetings and exhibitions held throughout the state, as well as to the large number of lectures and public talks on health topics given by members of the faculty in different towns and cities. A noticeable feature is the number of members taking part in this work, thirty-five speakers being furnished from the members of the state society. The subjects were generally popular questions of hygiene. The addresses were given throughout the entire year in churches, schoolhouses, colleges and town halls, and before labor organizations, women's clubs, local business men's organizations and similar bodies. One hundred and eighty such addresses were given throughout the year. The work of the Committee on Public Instruction in Maryland is worthy of commendation and should be duplicated, as far as possible, in each one of our states.

A MODEL CONSTRUCTION CAMP

The construction camp of the United States Reclamation Service at Elephant Butte, N. Mex., where the government is constructing an irrigation plant, is an example of what may be done in a construction camp. It is described by Dr. J. Dale Graham.[1] The camp has 3,000 inhabitants, 1,200 of whom are employees of the Reclamation Service, and there are many families with children. Most of the laborers are single men, and live in cottages or barracks. These are screened, lighted with electricity, sewered and provided with water. Septic tanks are provided for the disposal of sewage, both in the official and the other divisions of the town, which are separate. A regular system of garbage and waste disposal is provided, wastes being burned and edible garbage being hauled from the city and fed to hogs, which are kept a long distance away. Flies in both the upper and lower towns are at a minimum, and fly traps are provided to trap those which do appear. The commissary, where well kept foods at reasonable prices are to be had, is under government control. All markets are screened, and ice and cold storage are provided. Shower baths, urinals and lavatories are provided in men's quarters, and private cottages have modern conveniences. There is a well-equipped hospital containing two private rooms and wards to accommodate twelve beds, or more in an emergency. The personnel includes a physician, a nurse, an orderly and a housekeeper. A consulting surgeon is available. Reports to the engineering department on the medical service, the sanitation of the camp and the statistics of illness, absence from work, etc., are made each ten days, every month and at the end of the year by the head of the sanitary division. The business of the physician of the camp has become not so much to treat the sick as to create and maintain conditions which will keep illness at a low ebb. Physical examination of applicants for work is carried out, vaccination for smallpox and typhoid are required, and it is said that typhoid vaccination has not caused any employee the loss of time from work. In the parts of the town not taken care of by the septic tanks, privies of approved pattern are employed, which are kept in good condition by the use of lime and oil, and are carefully screened. Amusements are systematically provided, and liquor is to the greatest extent kept out of the camp, so that it has not proved to be a nuisance. After three years of experience, Graham concludes that the price of good sanitation in such a place is an eternal fight, but that anything tending to create a better moral and sanitary environment increases the efficiency and output of the employee.

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[1] Graham, J. D.: Engineering News, Dec. 31, 1914.

CARCINOMATOUS INVOLVEMENT OF NERVES

The lancinating pain characteristic of carcinoma long since directed attention to the possibility that the attacks of pain depend on direct involvement of the nerves in the affected region. The recorded observations indicate that at least in occasional instances of carcinoma associated with especially severe pain, carcinomatous infiltration of the nerves takes place to such an extent as to constitute a reasonable and tangible explanation of the pain. On the other hand, carcinomatous infiltration of nerves may be encountered without having been associated with even the slightest degree of pain, and of course carcinoma may be associated with pain without demonstrable involvement of the corresponding nerves. The true relationship between pain in carcinoma and the condition of the nerves, consequently, still remains obscure and invites further careful investigation by modern methods. The statement is sometimes made that carcinomatous infiltration of nerves is unusual,[1] but in all probability thorough and systematic examination will show it to occur more commonly than is ordinarily believed. Thus Ernst[2] enumerates single instances of carcinoma originating in a variety of places, in each case of which there was infiltration of the nerves of the region; and Fenger,[3] to whom we owe an early (1874) and exceptionally thorough but overlooked study of this question as it applies to carcinoma of the stomach, found that in four of twenty-nine cases the carcinoma had extended into the end branches and stems of the vagi, forming either separate spindle-shaped swellings or bulbous enlargement of the nerve at its entrance into the tumor.

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[1] Moschovitz: Virchows Arch. f. path. Anat., 1915, ccxviii, 352.

[2] Ernst: Beitr. z. path. Anat. u. z. allg. Path., 1902. Supplement, vii, 29.

[3] The Collected Works of Christian Fenger, Philadelphia, W. B. Saunders, 1912, i, 30.

Hydrogen Peroxid as a Household Remedy.—Solution of hydrogen peroxid is an unusually popular household remedy. It is frequently used as a gargle, a mouth wash, and a local application in cuts, burns, and other wounds. The commercial product may be preserved with acetanilid, may contain an excess of acid, or be altogether devoid of free oxygen. The presence of acetanilid, while perhaps not objectionable as such, entails heterogeneous decomposition products that are nauseating if not otherwise harmful. A preparation containing an excess of free acid might do considerable harm when used as a tooth wash, and a preparation that is devoid of free oxygen may be otherwise contaminated and when used on a wound might prove to be a source of infection rather than a preventive.—*Public Health Reports*, Jan. 29, 1915.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, *new hospitals, education, public health, etc.*)

DISTRICT OF COLUMBIA

Red Cross Building Cornerstone Laid.—On March 27, President Wilson and former President Taft assisted at the laying of the cornerstone of the new building for the American Red Cross to be erected at a cost of $800,000 as a memorial to the heroic women of the Civil War. The building is to be completed by April, 1916.

ILLINOIS

Smallpox at the University.—The occurrence of three cases of smallpox at the University at Champaign has led the State Board of Health as a precautionary measure to issue an order that any student not entirely well must not leave the university for the spring vacation until it is shown that he is not suffering from smallpox. This is to prevent possible epidemics at the homes of students. All persons exposed to the disease at Champaign have been required to submit to vaccination.

Fined for Illegal Practice.—J. D. Larson, who is not a physician, confessed to the Winnebago County court at Rockford that he had been practicing medicine without a license. He was fined by the court and warned not to repeat the offense. His methods included telling his patients their ailments after looking into their eyes and then giving them books or tracts to read on the subject. He also prescribed and dispensed some of his own pellets. Although the authorities had much evidence in regard to specific cases, Larson did not fight and it was not necessary to present this evidence. He is still in Rockford and maintains an office with one Campbell, it is said, with a sign on the door reading "Health Home." The public prosecutor's attention has also been called to this.

INDIANA

Physicians Organize.—Physicians of East Chicago met March 9 and perfected an organization, electing Dr. Alexander G. Schlicker, president; Dr. Robert Spear, vice-president, and Dr. Solomon M. Goldberger, secretary and treasurer.

Personal.—Dr. Tilman O. Armfield, secretary of the Elwood Board of Health, was held up and robbed, March 23, presumably by a drug addict as his hypodermic syringe and his supplies of cocain and morphin were taken from him.——Dr. James W. Milligan, chief physician of the Indiana State Prison, Michigan City, has been appointed superintendent to the Southeastern Hospital for the Insane, Madison, succeeding Dr. Edward P. Busse. Dr. Milligan will assume charge of the institution on June 1.——Dr. John A. Lambert, Indianapolis, has been elected medical director of the Meridian Life Insurance Company, Indianapolis.——Dr. Horace R. Allen, Jr., Indianapolis, is spending several months on the Pacific Coast for rest and recreation.——Dr. Albert Seaton, Indianapolis, has been elected assistant medical director of the State Life Insurance Company.——Dr. George W. McCaskey, Fort Wayne, has returned home after several months spent at Lorain, Miss.——Dr. William I. Wolpert, Elizabeth, is reported to be seriously ill with nephritis.

Hospital Notes.—The Bartholomew County Hospital has been erected at Columbus at a cost of $100,000. The institution will be provided with a tuberculosis annex for which a tax levy and bond issue were provided in the law passed by the legislature in 1913.——The contract for a new building of the King's Daughters' Hospital, Madison, has been awarded for $15,000.——The new hospital for Daviess County at Washington was formally opened, March 18. The Graham heirs presented the building and grounds for the Daviess County Hospital Association and the institution has accommodations for fifteen patients.——The formal opening of the free medical clinic of the Floyd County Anti-Tuberculosis League, New Albany, took place March 16. An illustrated address was delivered by F. L. Sampson, secretary of the Hazelwood Sanatorium, Louisville.——Plans are being promoted for a free clinic at St. John's Hospital, Anderson.——The Franklin Tuberculosis Sanatorium Company announces that it has dissolved.

KANSAS

Personal.—Dr. Athens V. Lodge, Kansas City, has been elected grand medical director of the Sons and Daughters of Justice.

State Board Appointments.—Among the appointments made by Governor Capper of Kansas, March 19, are State Board of Health, Drs. Oliver D. Walker, Salina; William M. Earnest, Washington; Charles H. Lerrigo, Topeka; Charles H. Ewing, Larned; Harry L. Aldrich, Caney, and Clay E. Coburn, Kansas City; State Board of Medical Examination and Registration, Drs. George M. Gray, Kansas City; Lewis A. Ryder, Topeka; Charles W. Jones, Olathe, and Albert S. Ross, Sabetha, and Advisory Commission Sanatorium for tuberculosis patients, Drs. William H. Bauer, Sylvia, and David R. Stoner, Quinter.

KENTUCKY

Personal.—Dr. Samuel M. Stedman, Versailles, while cranking his automobile, March 19, fractured his arm.——Dr. Frank Boyd of the Illinois Hospital staff, Paducah, has been appointed district federal medical examiner.——Dr. Moreau S. Browne, Winchester, is reported to be critically ill at his home following an attack of influenza.

Hazlewood Sanatorium Opened.—Hazlewood Sanatorium, Louisville, for the treatment of tuberculosis, was opened April 1. A medical advisory board has been appointed composed of nine residents of Jefferson County and an equal number from the state at large. The advisory board from Jefferson County consists of Drs. Ap Morgan Vance, chairman; J. Rowan Morrison, secretary; and Drs. Cuthbert Thompson, Irvin Lindenberger, Ben. C. Frazier, J. Royden Peabody, Frank W. Fleischaker, Thomas L. Butler and Henry Enos Tuley. The board is advertising for a resident physician.

LOUISIANA

New Society Organized.—Physicians of Assumption Parish met at Napoleonville, March 22, and organized the Assumption Parish Medical Society with a charter membership of seven. Dr. L. E. H. Duffel was elected delegate to the State Medical Society.

Personal.—Dr. Joseph A. Estopinal, Arabi, St. Bernard Parish, has been appointed chief of the ear, nose and throat clinic of the Illinois Central, and Yazoo and Mississippi Valley railroads.——Dr. William F. Pettit, New Orleans, was painfully injured in a collision between his motor car and a grocery truck, March 20.

Hygiene Lectures.—Superintendent Gwinn of the New Orleans Normal School has organized a lecture course on "The Medical and Social Aspects of Hygiene." The lectures are being given on Fridays. They commenced on March 26 and will continue until May 28. The lecturers and their subjects are as follows:

March 26—Dr. C. C. Bass, "Prevention of Malaria."
April 9—Judge A. H. Wilson, "Physical Health and Juvenile Delinquency."
April 16—Dr. J. A. Gorman, "Oral Hygiene."
April 23—Dr. Dandridge P. West, "Nutrition in Infancy and Childhood."
April 30—Dr. Isadore Dyer, "Hygiene of Skin."
May 7—Dr. Marcus Feingold, "Hygiene of the Eye."
May 14—Dr. Chas. J. Bloom, "Significance of Physical Measurements of Children."
May 21—Dr. E. M. Hummel, "Nervous and Mental Hygiene."
May 28—Dr. Edmund Moss, "How Teachers May Help the Medical Inspector."

MARYLAND

The Fight Against the Mosquito Pest.—On March 23, Surgeon-General Gorgas came to Baltimore to confer with the city officials regarding the abolition of the pest mosquitoes. General Gorgas expressed the opinion that it is impossible to destroy the mosquito absolutely, and that it is almost wholly a matter of drainage, thereby removing the breeding places of the mosquito.

Personal.—Dr. Fred Caruthers, returning to his home in East Baltimore, March 26, was held up and robbed by a negro.——Dr. J. Carroll Monmonier, Jr., Catonsville, has been elected chairman of the committee on sanitation of the Confederated Civic Association of Baltimore County; Dr. Albert L. Wilkinson, Raspeburg, chairman of the subcommittee on public instruction; Dr. William J. Todd, Mt. Washington, chairman of the subcommittee on sewerage and water supply, and Dr. Frederick Beitler, Halethorp, chairman of the subcommittee on sanitary legislation.——Dr. Clapham P. King, Baltimore, one of the physicians to the Serbian Red Cross unit, who has been ill with typhus fever in Serbia, is reported to be convalescent.——Dr. Jacob H. Hartman, one of the founders of the Baltimore Eye, Ear and Throat Hospital, was given a banquet, March 18, at which a handsome silver service was presented to him on behalf of the staff of the hospital.

MASSACHUSETTS

East Boston Physicians Organize.—Physicians of East Boston met March 19 and organized the East Boston Medical Association, electing Dr. Frank H. Tilton, president; Dr. Robert Bonney, vice-president; Dr. John D. Taylor, secretary, and Dr. Alexander L. McLaren, treasurer.

Proposed Hospital for Cambridge.—Plans have been prepared for the proposed Cambridge City Hospital, for which $150,000 has been appropriated by the legislature. A site has already been secured at a cost of $60,000 on which a series of buildings will be erected consisting of a main hospital building, a main administration building with two wings, two stories and basement in height, with all necessary equipment, including solariums, outpatient and Roentgen-ray departments, etc.

MICHIGAN

State Board Named.—The following five members of the State Board of Registration in Medicine were appointed by the governor, March 17: Drs. Arthur M. Hume, Owosso; Enos C. Kinsman, Saginaw; Duncan A. Cameron, Alpena; Frederick C. Warnshuis, Grand Rapids, and Arthur L. Robinson, Allegan.

Personal.—Dr. George H. Southwick, Grand Rapids, is ill with smallpox at the Municipal Isolation Hospital.——Dr. Alexander H. Scott, St. Joseph, is reported to be seriously ill at the home of his daughter in Brunswick, Ga.——Dr. Celestin Le Golvan, Iron Mountain, has started for France to serve in the army.

Hospital News.—The new tuberculosis hospital of Detroit, which is to form one of the units of the Hermann Kiefer Hospital, will be built on Schmittdiel Avenue and will consist of a main portion seven stories high with two wings, six stories high and will accommodate 345 patients. The building will be of reenforced concrete, brick and stone and will cost about $400,000.——A meeting of the citizens of Cheboygan was held March 16 to discuss a proposed hospital for the city.——The Dodge Brothers automobile factory in Detroit has a fully equipped hospital with separate wards for men and women, an operating room, physician's room, etc.

MINNESOTA

President Remsen to be Orator at University.—Dr. Ira Remsen, president emeritus of Johns Hopkins University, has been selected to deliver the principal address at the formal opening of the new chemistry building of the University of Minnesota, May 24.

Personal.—Dr. Edwin S. Muir, mayor of Winona, who underwent operation at the Eitel Hospital, Minneapolis, March 15, is reported to be out of danger.——Dr. Arthur B. Ancker, superintendent of the City and County Hospital, St. Paul, and Mrs. Ancker, are taking a trip to Panama via New York.——Dr. L. Emil Belcourt, Argyle, has enlisted in the Canadian Army Medical Corps.——Dr. E. J. Thompson, Finlayson, is said to be seriously ill at his home.

NEW MEXICO

Still No Medical Practice Act.—The third session of the legislature since New Mexico was admitted to the Union has adjourned without enacting a new medical practice act. At each session a bill is presented. The first legislature passed a law, backed by the New Mexico Medical Society, but the governor vetoed it. This year Senator F. F. Doepp of Carlsbad, himself a physician, introduced a bill amending the present practice act in important particulars. It passed the Senate but died in the House. The usual arguments that it was a law to create a medical trust backed by the American Medical Association were made by newspapers. The usual statements that "we would be prevented from taking what we like for our own belly-ache," were made. The fight will be continued and some day it is hoped New Mexico will join the rank of progressive states in the matter of a medical practice act. As it is now, it is the dumping ground for all the other states in the Union.

NEW YORK

Hospital for Babylon, L. I.—Elbert C. Livingston has given a plot of ground valued at $5,000 as a site for a hospital provided the South Side Hospital Association of Babylon, L. I., shall erect a hospital thereon valued at $25,000.

Funds for Adam Hospital.—Dr. John H. Pryor made a plea before the board of aldermen of Buffalo, March 16, for the J. N. Adam Hospital, Perrysburg, and obtained a maintenance appropriation of more than $80,000. This makes a total allowance for the hospital of $134,084 for salaries and maintenance.

Takes Charge of Sanatorium.—Dr. Harry Jay Brayton, West Brighton, for three years a member of the Iola Sanatorium, Rochester, has been appointed superintendent of the Municipal Tuberculosis Sanatorium, Syracuse, and assumed his duties April 1. The sanatorium is expected to open on July 1, and Dr. Brayton has charge of the purchasing of the furniture and equipment and employment of all assistants and help.

New Christian Science Bill Reported Favorably.—A new bill designed as an amendment to the state health law was reported favorably by the assembly judiciary committee on March 24. The bill reads: "Nothing in this act shall be construed to affect the practice of Christian Science for the relief of the sick and suffering provided no drugs or other material remedies are employed, and provided further that no quarantine or sanitary regulations are violated."

Boylan Law Strengthened.—At the conference between delegations interested in the drug crusade in New York City and representatives of the State Board of Pharmacy and the State Pharmaceutical Society, a compromise antidrug bill was agreed upon which will strengthen the Boylan law. Under the new bill, which is called the Bloch bill, a druggist can refill a prescription containing a habit-forming drug only for the person for whom it was originally compounded. Physicians must make a physical examination of a patient before giving him a drug cure. A bill to prevent the use of habit-forming drugs in patent medicines will be urged next years by *Howard Clark Barber, superintendent of the Society* for the Prevention of Crime.

New York City

Personal.—Kings County Medical Society has adopted resolutions of unqualified endorsement of the administration of Dr. Joseph H. O'Connell as health officer of the port of New York.——The will of the late Dr. Edward N. Hassenmeyer, who died April 30, 1914, makes his father, Augustus Hassenmeyer, the sole beneficiary.

Health Department Acts for Industrial Hygiene.—Health Commissioner Sigismund S. Goldwater has completed plans for the formation of a division of industrial hygiene which will be part of the bureau of infectious diseases. A plan of work has been drawn up which includes a general industrial survey and the location of unhygienic plants. The new division will be in charge of Dr. Louis I. Harris, who will be assisted by Prof. W. Gilman Thompson.

Clinical Society Organized.—The New York Throat, Nose and Lung Hospital Clinical Society has been organized at that institution with the following officers: president, Dr. Theodor Blum; vice-president, Dr. Vincent J. Orlando; secretary, John L. Courrier, D.D.S.; and treasurer, Dr. Timothy D. Sullivan. The first regular meeting will be held April 15, at the hospital at 259 East Fifty-Seventh Street.

Transfer of Quarantine to Federal Government.—The Chamber of Commerce of New York in a report to the council favors the transfer of the local quarantine affairs of the port of New York to the federal government. The service has cost the city $22,000 a year. A new detention hospital will soon be required, and this will cost the city a quarter of a million. The local service has been effective, but it is believed it may be improved under government supervision.

Hospital Buys Site.—The trustees of the Presbyterian Hospital have taken an option of the former American League baseball grounds on Washington Heights. This tract of ground contains about six city blocks and is valued at $2,000,000. The purchase of this site has been made possible by the bequest of the late John S. Kennedy, by whose will the hospital received $2,500,000. It is planned to use a large part of the site for hospital purposes, but considerable space will be used by buildings for special purposes, scientific and educational, in connection with Columbia University. No plans have yet been made for the disposition of the present hospital property on the Middle East Side.

Cancer Lectures and Clinics.—The Faculty of the Cornell University Medical College announces a course of instruction on cancer, for senior students and graduates in medicine, of eighteen lectures to be given at the medical college on Tuesdays and Thursdays from March 30 to May 27. Coincident with the lectures there will be a series of clinics in two sections at the General Memorial Hospital at One Hundred and Sixth Street and Central Park, West, on Mondays and Wednesdays from 9 a. m. to 12 noon. The lectures will be delivered by Drs. Richard Weil, Stanley R. Benedict, James Ewing, Lewis G. Cole, Arthur F. Holding, William B. Coley, Charles L. Gibson, Edward L. Keyes, Jr., Harold C. Bailey, Burton J. Lee, John A. Hartwell, H. H. Janeway, Silas P. Beebe and Arthur F. Coca, and the clinics will be given by Drs. Richard Weil, H. H. Janeway, Arthur F. Holding, William B. Coley, William A. Downes, George H. Mallett and Silas P. Beebe.

NORTH CAROLINA

Hospital News.—The Wake Hospital, Raleigh, erected at a cost of $75,000 will be completed in May.——Plans have been perfected by the Associated Charities of Charlotte for the establishment of a free medical dispensary to be located in the basement of the city hall.

Personal.—Dr. Henry F. Long, Statesville, suffered a loss of $4,000 by the burning of his house on March 18.——Dr. Samuel P. Burt, Louisburg, was injured by the overturning of his automobile, March 18.——Dr. John C. Montgomery, Charlotte, who has been under treatment in Hot Springs, Ark., on account of rheumatism, is reported to be much benefited.

OREGON

New Medical Building Assured.—An official report states that the Oregon legislature has made an appropriation of $50,000 for the first building on the new campus of the University of Oregon, Department of Medicine.

Suggests Destruction of Coyotes.—Dr. Calvin S. White, Portland, state health officer, has given it as his opinion that *the best and most sure remedy for the rabies, which is exceed*ingly prevalent in Eastern Oregon, is the destruction of coyotes, among which the disease has been found.

Personal.—The University of Oregon, Department of Medicine, has secured the services of Dr. Harold B. Myers, Portland, formerly connected with the University and Bellevue Hospital Medical College of New York City, as professor of materia medica and pharmacology, and of Dr. Howard D. Haskins, Cleveland, formerly connected with Western Reserve University, School of Medicine, as professor of physiologic chemistry.——Dr. Earl V. Morrow, Marshfield, has left for New York City on his way to Calais, France, where he will enter the American Red Cross service.——Dr. Earle B. Stewart has been appointed physician to the Oregon Soldiers' Home, Roseburg, vice Dr. Elmer V. Hoover, resigned.——Dr. Harry F. McKay, Portland, has been reappointed a member of the State Board of Medical Examiners.

PENNSYLVANIA

General Hospital for Connellsville.—The physicians of Connellsville are planning a general hospital to supplant the cottage state institution, which can treat only accident cases. Patients suffering from sickness or in need of surgical attention have to go to Pittsburgh.

Two New State Hospitals Planned.—Two new insane asylums will be built by the state according to the terms of bills being drafted by Judge Isaac Johnson, Bromley Whorton and F. J. Torance of the Board of Public Charities. One of the institutions will be in the eastern end of the state and the other in the western and each will accommodate about 1,500 patients. The bills provide for the appointment of a commission to select and buy sites.

Personal.—Dr. Wilbert L. Grounds, Emporium, has been appointed assistant surgeon at the Roaring Springs Hospital.——Dr. Charles B. Jones, Summerville, was awarded damages amounting to $15,000 in his suit against the Pennsylvania Coal and Coke Corporation, March 18. The injuries for which damages of $60,000 were sought, were caused by the crossing of telephone wires and high tension current lines which so charged a telephone line which the plaintiff was using, that he sustained injuries resulting in the loss of both thumbs and severe nervous shock.——Dr. Edwin S. Dorworth, Belefonte, was the guest of honer at a meeting and dinner of the Centre County Medical Society, March 11.

Philadelphia

Hospital News.—The new medical building of the Jewish Hospital, erected at a cost of $70,000, was opened for inspection by the public, March 21. The building is of the most modern fire-proof construction and three stories in height. The second and third floors each contain two wards and sun parlors.

Medical Council.—The new Federated Medical Council in Philadelphia, a central union of existing bodies to educate the public along health lines, includes Dr. Samuel McClintock Hammill, chairman; Dr. William N. Bradley, secretary; and Drs. Howard Carpenter, Charles A. E. Codman, Charles A. Fife, C. Lincoln Furbush, J. Claxton Gittings, Howard K. Hill, Henry D. Jump, William D. Robinson and John F. Sinclair.

Maternity Opened.—The new Maternity of the Germantown Hospital, erected at a cost of about $35,000, was opened to receive patients, March 1. The building is of brick, 38 by 140 feet, and is divided into two portions, one for partly free patients and the other for pay patients. In the first portion there is one large ward, two small wards, operating, sterilizing and linen rooms, etc., the pay wing being devoted entirely to private rooms.

Graduate Course in Tuberculosis at Blockley.—The tuberculosis wards of the Philadelphia General Hospital offer unusual facilities for postgraduate instruction in diseases of the lungs and physical diagnosis. The chiefs of staff of the tuberculosis department will give a postgraduate course of daily instruction, except Saturdays and Sundays, to cover the period of three weeks from Monday, April 12 to Friday, April 30, inclusive. The success of the new graduate course in neurology at the same institution seems to warrant this advance in medical education. The members of the staff will take personal charge of the instruction from 4 to 6 p. m. daily. Aside from bedside teaching, clinical talks on terms and definitions, methods of physical examination and diagnosis, principles of social service work, treatment, specific therapy, immunity, etc., will be included.

SOUTH CAROLINA

Association Organized.—Physicians of Lancaster County met in Lancaster, March 13, and organized the Lancaster County Medical Association and elected the following officers: president, Dr. Jeff D. Funderburk, Lancaster; vice president, Dr. Walter C. Twitty, Kershaw; secretary-treasurer, Dr. John A. Winstead, Lancaster.

Hospital Incorporated.—The Magdalene Hospital has been incorporated at Chester with a capital stock of $20,000. The officers of the corporation are: Dr. Stewart W. Pryor, Chester, president and treasurer; Drs. Ralph H. McFadden, Yorkville, and George A. Hennies, Chester, vice presidents; and Dr. Henry B. Malone, Chester, secretary.

Personal.—Dr. Thomas W. Jackson, health officer of Spartanburg, has been assigned to duty with the Serbian sanitary force and has sailed for Europe.——Dr. Julius H. Taylor, Columbia, has resigned as a member of the board of regents of the State Hospital for the Insane.——Dr. George Benet, Columbia, has started for Europe with the Harvard Medical School contingent for service in the American Hospital, Paris.——Dr. Samuel M. Pitts, Saluda, sustained a loss of $1,500 by fire, March 10.

VIRGINIA

Refuses to Tax Physicians.—The state senate has refused to restore the license tax on physicians and surgeons which was repealed last year.

The Work at Pine Camp.—The Municipal Tuberculosis Colony, Richmond, has had an average of thirty-three patients a month during the past year. During the last three months of the year the average was reduced on account of the insufficiency of funds. The average daily cost per patient has been $1.15.

Personal.—Dr. Allen W. Freeman, Richmond, has resigned as assistant state health commissioner to become epidemiologist for the U. S. Public Health Service at Washington.——Dr. Isaac H. Leion, Richmond, is said to have been fined $100 in the federal district court, recently, for using the emblem of the American Red Cross for trade and advertising purposes.

WISCONSIN

Schools Closed on Account of Epidemic.—All schools, theaters and the public library in Antigo were closed during the second week of March on account of an epidemic of scarlet fever. Twenty-five cases of the disease were reported.

Personal.—Drs. Michael E. Corbett and Bernard C. Gudden, both of Oshkosh, have been appointed trustees of Sunnyview, the new Winnebago County Tuberculosis Sanatorium.——Dr. Joseph C. Elfers, Sheboygan, has returned from abroad.——Dr. William W. Reed, Jefferson, recently celebrated his ninetieth birthday anniversary.

Hospital Items.—At a meeting of the citizens held in Mondovi, March 9, the proposition of buying the Mondovi Hospital from Dr. Philip B. Amunson, Mondovi, was considered. A soliciting committee was appointed to raise $10,000, and on the securing of this fund permanent organization is to be perfected.——At a meeting of the board of directors of the Wisconsin Deaconess Hospital, Green Bay, bids were submitted for the erection of a new building which is to cost about $60,000.

CANADA

Personal.—Dr. W. H. Jakeman has been appointed bacteriologist to the board of health, New Westminster, B. C. ——Dr. Andrew Croll, Saskatoon, vice-president of the Saskatchewan Medical Society, is on the staff of the General Hospital with the Second Canadian Contingent.

Manitoba Medical Society.—The joint annual meeting of the Manitoba Medical Society and the Winnipeg Medical Society took place on February 19. Dr. Herbert A. Gordon, Portage La Prairie, delivered the presidential address which dealt with the advance of modern therapeutics. The following officers were elected: president, Dr. John S. Poole, Neepawa; secretary, Dr. Roslyn B. Mitchell, Winnipeg (reelected).

University News.—The following medical graduates have been elected to serve six years on the Council of Queen's University, Kingston: Victoria Reid, M.D., Toronto; Thomas H. Farrell, M.D., Utica, N. Y.; Edward C. Watson, M.D., Detroit. Queen's University medical faculty has asked the Canadian Militia Department for a definite reply with regard to its offer of a stationary hospital for overseas service. Action is imperative at the present time, as many students have offers of hospital positions in both the United States and Canada. Major Frederick Etherington, M.D., Kingston, who has charge of the recruiting for this hospital, is besieged with applications from doctors and nurses. The staff of the hospital will number 135.

GENERAL

Grant for Medical College in China.—The China Medical Board of the Rockefeller Foundation has recommended a grant of $16,200 annually for five years to the Yale Medical College, Changsha, China. The money is to be used for the support of six American physicians at the institution.

Pediatricians to Meet.—The annual meeting of the American Pediatricians' Society will be held May 24 to 26 at the Laurel House, Lakewood, N. J., under the presidency of Dr. George N. Acker, Washington, D. C. Dr. Samuel S. Adams, 1801 Connecticut Avenue, Washington, is secretary of the association.

A Warning.—The attention of physicians is again called to the activities of certain young men in Pennsylvania who are attempting to secure subscriptions for The Journal and offer magazines through a bureau which they call the National Educational Association, the plea being based on the desire of the young men to secure free scholarships. When last heard of the scheme was being pushed in Philadelphia.

Higher Standards of Preliminary Education.—The University of Virginia, Department of Medicine, and the School of Medicine of the University of North Carolina, announce that beginning in 1917 the requirements for admission will be increased to two years (sixty semester hours) of collegiate work, including courses in physics, chemistry, biology and French or German.——The Eclectic Medical College, Cincinnati, announces that hereafter one year of collegiate work, including the specified sciences, will be required.

Pathologists and Bacteriologists Meet.—Arrangements have been completed for the meeting of the American Association of Pathologists and Bacteriologists in St. Louis, April 2 and 3. The sessions will be held at the Washington University Medical School and at the St. Louis University. The headquarters of the association will be at Hotel Jefferson. Invitation lunches will be provided for members of the association by the Washington University Medical School and by the St. Louis University Medical School. The annual dinner of the association will be at the University Club, Friday, April 2, at 7 o'clock.

Consolidating Service Sanatorium.—Col. George E. Bushnell, M. C., U. S. A., Fort Bayard, N. Mex., has been detailed to visit the Public Health Service Sanatorium at Fort Stanton, N. Mex., and the Navy Sanatorium at Las Animas, Colo., and report on the advisability of consolidating these institutions with the United States General Hospital (the Army Sanatorium) at Fort Bayard, N. Mex. Colonel Bushnell's report will be considered by the secretaries of the Army, Navy and Treasury. Colonel Bushnell is the present commandant of the Fort Bayard institution and during his regime this old adobe army post has been converted into the finest institution of its kind in the world at an expenditure of $1,000,000.

Prize for Social Hygiene Pamphlet.—The American Social Hygiene Association has been offered a prize of $1,000 by the Metropolitan Life Insurance Company to be awarded to the author of the best original pamphlet on social hygiene, for adolescents between the ages of 12 and 16 years, approved by a committee of judges to be selected by the association. The contest closes July 31, 1915, at midnight. Manuscripts must be typewritten, on one side only of plain white paper, 8 by 10½ inches; must be in English; must not exceed 3,500 words, and must not have been previously published. The winning manuscript is to become the property of the donor of the prize, and the right to purchase any manuscript submitted at 5 cents a word is reserved by the donor and the association. Manuscripts and requests for further information should be addressed to the American Social Hygiene Association, Inc., 105 West Fortieth Street, New York, N. Y.

Bequests and Donations.—The following bequests and donations have recently been announced:

German Hospital, Chicago, $5,000 by the will of Jacob Rehm.

Mercy Hospital, Chicago, two-thirds of the estate of Mrs. Harriet Haynes, St. Charles, valued at $500,000.

Presbyterian Hospital, New York City, $20,000; New York Association for Improving the Condition of the Poor, St. Vincent's Hospital, Hospital Guild of the New York Medical College, and Bellevue Hospital, each $10,000; New York Ophthalmic Institute, $5,000, by the will of William Washington Cole.

White Plains (N. Y.) Hospital, $2,500, by the will of Mrs. Clara F. Hitchcock.

Clearwater, Fla., Hospital, $100,000, for endowment fund, donation by Morton F. Plant.

Clark County, Ky., Medical Society, a subscription of $1,000 as a donation to the Winchester (Ky.) Hospital Fund.

Mercy Hospital, Kansas City, a donation of a large house and grounds valued at more than $50,000, by the will of J. C. Gates, Kansas City.

Official Bulletins on Narcotic Drugs.—A number of inquiries have been received regarding the official bulletins containing the laws and regulations, both state and national, on habit-forming drugs. Full information on this subject can be secured from government publications. The full text and preliminary regulations of the Harrison law are contained in Internal Revenue Regulations No. 35, issued Jan. 15, 1915. Supplementary regulations appear in Treasury Document 2172, issued March 9, 1915. These publications relate to the federal law. In reprint No. 240 from the Public Health Reports of Nov. 13, 20 and 27, 1914, supplement to Public Health Bulletin No. 56, a special bulletin published by the United States Public Health Service, can be found all the state laws and regulations relating to poisons and habit-forming drugs. These three pamphlets contain full information regarding the law on this subject. The passage of the Harrison law has stimulated the enforcement of state laws and has made it possible, through the system of records provided for, to enforce some of the state laws that have heretofore been unenforcible.

Pan-American Congress to Meet.—The seventh Pan-American congress will meet in San Francisco, June 17 to 21, inclusive. It assembles pursuant to invitation of the President of the United States issued in accordance with an act of Congress approved March 3, 1915.

The countries and colonies embraced in the Congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, El Salvador, Ecuador, Guatemala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas and St. Vincent. The organization of the Congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates.

The Congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is $5 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the treasurer, Dr. Henry P. Newman, Timken Building, San Diego, Cal.

The Palace Hotel will be headquarters.

The first Pan-American medical congress was most successfully held in the United States in 1893. Five intervening congresses have been held in Latin-American countries. The officers are Charles A. L. Reed, president, Cincinnati; Ramon Guiteras, secretary-general, New York City; Harry M. Sherman, chairman, committee of arrangements, San Francisco; Philip Mills Jones, special committee on hotels, San Francisco.

FOREIGN

Trypanosomiasis Contracted in Research Work.—Our Italian exchanges state that Prof. A. Lanfranchi, director of the veterinary institute of pathology at Bologna, contracted trypanosomiasis two years ago in the course of his six years' study of trypanosomes. He then took a course of treatment at the Paris Pasteur Institute and was apparently cured, but the trypanosomiasis has recently broken out again. He has gone to Paris for treatment.

Deaths in the Profession Abroad.—G. Forssner, a leading Swedish clinician, professor of internal medicine at the University of Upsala, succumbed January 19 to edema of the glottis in the course of an acute infection of the throat, aged 38.——H. Petersson, a prominent member of the national public health service in Sweden, aged 58.——A. Marcacci, professor of physiology at the University of Pavia and author of numerous articles on experimental physiology and physiologic chemistry.——Giuseppina Cattani, privat-docent for general pathology at Turin and later at Bologna, one of the first women to be admitted to the practice of medicine in modern Italy, aged 55.——The cable brings word of the death of another victim to exanthematous typhus among noted specialists in infectious diseases, Prof. Georg Cornet of Berlin, aged 57. He was the first to discover the tubercle bacillus outside of the body and preach its non-ubiquity, thus providing a basis for prophylaxis. He was assistant to Robert Koch in the Institute for Infectious Diseases at Berlin, and the list of Cornet's works, especially on tuberculosis, is long and imposing.

WAR NOTES

Personal.—Dr. Rufus A. Van Voast, Cincinnati, who is on duty as an auxiliary surgeon with the Second Regiment of the French Foreign Legion, has written urging the Americans to aid the French in the campaign being waged against typhoid fever.——Dr. Charles McDonald of Washington, head of the American War Relief Hospital in Budapest, who recently arrived in New York, predicts that when warmer weather comes typhoid will become very prevalent in the Austrian army. He says conditions, relative to sanitation in the camps, are similar to those prevailing in the American camps in 1898. Conditions among the wounded are deplorable. As many as 70,000 wounded had been in Budapest at one time.

Oversupply of Hospital Trains in Germany.—A Berlin exchange announces that the hospital trains that have been equipped by various organizations, municipalities and private beneficence now number over 150, and far exceed the demand. Some of these trains stand unused on the sidings for weeks at a time, and hence the Red Cross calls a halt on further donations of the kind, saying that the capital could be used to better advantage otherwise.

Results of Antityphoid Inoculation.—A statement was recently made in the House of Commons by the British Under-Secretary of State for War that only 421 cases of typhoid fever had developed in the British forces during the present war and that of these, 305 had not been inoculated within two years. Among those who had been inoculated within two years, there was only one death and this individual had received only one inoculation instead of the two provided for by the regulations.

High-Speed Bullets Do Not Cauterize.—Dr. Alexis Carrel asserts that the theory that the speed of steel-jacketed bullets of high velocity is sufficient to generate heat and cauterize wounds, is incorrect, on account of the variation in the speed of the bullets at the point of contact. He finds that the wounds caused by projectiles are much less serious than in former wars and confirms his former assertion that the most serious cases in the great majority of wounds that become infected are due to shrapnel.

Prophylaxis of Epidemics in Austria.—The authorities in Styria, that province of Austria of which Graz is the capital, have ordered that linen or cotton napkins are not to be used for the present in public eating and drinking places. Paper napkins are to take their place and are to be burnt after once using. A placard to this effect has to be posted in each restaurant and saloon.——All men going to the front in Austria are now systematically vaccinated against typhoid, smallpox and cholera. In case time does not permit, the course for the latter may be completed at the front.

The Need of England for Medical Officers.—The current issue of the London *Lancet* calls attention to a need for medical men. Alfred Keogh, Director-General of the Army Medical Service, states:

> 1. The need of medical men, both for home and foreign service, is acute. We want every qualified man who is physically fit and willing to serve.
>
> 2. We are in special need of general practitioners, but would be glad to take on expert surgeons, ophthalmologists, radiographers, etc.
>
> 3. We could give suitable men immediate employment.
>
> 4. At present we are not, except in special cases, sending men over 40 years of age overseas, but we should gladly take on older men for home service.
>
> 5. We do not wish to denude the country of civil practitioners, but every man who can arrange for his work to be done at home should come forward as early as possible if we are to keep up an adequate supply of medical attendance to our armies in the field. This is really a national emergency, and we hope that the medical profession, who have already done so much, will assist the responsible authorities to meet it.
>
> Should any qualified man wish to obtain a temporary commission in the Royal Army Medical Corps he should apply to the Secretary, War Office, Whitehall, S. W., for the necessary forms.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending March 27, 1915, lists the following contributions:

Dr. H. N. Torrey, Detroit, Mich.		$ 10.00
Faulkner County Medical Society, Conway, Ark.		25.00
Newburyport Medical Club, Newburyport, Mass.		20.00
Lieut. Col. F. P. Reynolds, M.C., U. S. A., Honolulu, H. T.		25.00
Dr. Waldo Richardson, Seattle, Wash.		5.00
Mrs. O. W. Johnson, Racine, Wis.		5.00
Dr. Joseph Brettauer, New York, N. Y.		25.00
Dr. Lewis Gregory Cole, New York, N. Y.		25.00
Dr. J. N. Hall, Denver, Col.		5.00
Dr. J. B. Rogers, Independence, Ia.		5.00
Medical Society of the Co. of Westchester, White Plains, N. Y.		25.00
Dr. Alex. Marcy, Jr., Riverton, N. J.		10.00
Dr. S. R. Woodruff, Bayonne, N. J.		5.00
Dr. G. C. McMaster, Pittsburgh, Pa.		5.00
Dr. Charles G. Mixter, Boston, Mass.		10.00
Dr. S. G. Laws, Spartanburg, S. C.		5.00
American Surgeons' Clinical Tour of 1914, Galesburg, Ill.		150.75
Colorado Chapter of A. M. P. O. Medical Fraternity, Denver Colo.		50.00
Boston Society of Psychiatry and Neurology, Boston, Mass.		100.00
Routt County Medical Society, Steamboat Springs, Colo.		10.00
Dr. Bertram M. Bernheim, Baltimore, Md.		10.00
Receipts for week ending March 27		$ 530.75
Previously reported receipts		5,221.50
Total receipts		$ 5,752.25
Previously reported disbursements:		
1,625 standard boxes of food @ $2.20	$3,575.00	
715 standard boxes of food @ 2.30	1,644.50	
Disbursements for week ending March 27:		
230 standard boxes of food @ $2.30	$ 529.00	
Total disbursements		$ 5,748.50
Balance		$ 3.75

F. F. Simpson, Treasurer.
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Typhus Fever in Serbia.—Of the twelve American Red Cross trained nurses and the six surgeons sent to Gevgalia in November, nine nurses are said to be ill with typhus, three physicians are ill with the disease and one physician has died.——It is said that there have been already 50,000 deaths as the result of this disease and that more than sixty physicians have died.——It is reported that spotted fever is assuming threatening proportions in the Balkan States. It is said that the chief of the Serbian Army staff, Surgeon-General Arangich, and the court physician, Dr. Nicoleavitch, have died and that in one day fourteen Serbian officers died in Nish.——In Monastir the death rate is said to be ab a dozen a day and in the small town of Powarevatz more th 1,000 deaths have occurred from the disease.——It is repor under date of March 15, that the epidemic of typhus fe in Serbia is diminishing.——The Bulgarian authorities adopting sanitary measures to prevent the introduction typhus fever into that country.——It is reported that Ryan, in charge of the American Red Cross units, has m than 2,900 patients under his care, principally of typh fever.——At Gevgalia there were 1,400 cases in charge Dr. James F. Donnelly, who later died from the disease.— The South Serbian American Red Cross work is under th direction of Drs. Ethan Flagg Butler and Ernest P. Ma ruder, Washington, D.C., who remained with their assistant both surgeons and nurses, in the typhus-infected region unt they were directed to remove to Saloniki.

LONDON LETTER

London, March 19, 1915.

The War

THE BRITISH RED CROSS

The number of auxiliary home Red Cross hospitals accepted by the War Office is now 816 containing 22,724 beds. Ten motor ambulance kitchens have been completed for the front to minister to the wounded before they reach the hospital base. These vehicles have been designed to avoid as much as possible rattling, spilling and breakage. Urns, bowls and cooking utensils have all their allotted niches, while there is a gross of enameled mugs distributed in wire trays convenient for carrying to the wounded. At the further end of each kitchen is the boiler for hot water with deep cooking "dixies" for making stews, cocoa, porridge, etc., while there are also a gas ring, a sink and a serving hatch. The kitchens already in use at the front have been very much appreciated.

THE SCARCITY OF PHYSICIANS IN CIVIL PRACTICE

The scarcity of physicians in civil practice as the result of the war has been described in previous letters to The Journal. With the formation of the new army, which is so much greater than what existed at the outbreak, the demand for physicians has increased correspondingly and the scarcity in civil practice has become greater. The present position is well shown in an address on "The Medical Profession and the War" delivered in the Royal College of Surgeons of Edinburgh by Dr. Norman Walker. Mr. Hodgson, the president, in opening the proceedings, said that the medical profession in this country was totally unprepared for the emergency which arose six months ago. Many physicians attached to various units engaged in civil practice did not anticipate that they would be called away at a moment's notice and drafted to other parts of the country. In consequence of representations made to the War Office, some of this trouble had now been avoided by a system of exchange. Dr. Norman Walker said that the dislocation of civil practice in the country was still increasing, and if they were to avoid a serious breakdown in the medical service of Scotland, they must realize the situation. Something like one-sixth of the medical profession was already serving—nearly 7,000 out of a total of 37,000—and more were required. Where were the additional physicians to come from? He hoped no licensing body, from a sort of morbid patriotism, would admit to the profession insufficiently trained students. The student's business was to work hard, and the teacher's to give more care to his teaching than ever. The work in Flanders, and later in Germany, would be very hard, and the men who were preparing for it should train as if for an international football match. As for the older men, their places were in the home defense army. The country districts were crying out for physicians. Those who had not been too long retired from practice should take down their armor, polish it up and gird it on again.

FOOD WASTE IN ARMY CAMPS

It is universally admitted that no British army, or indeed any army, has been so well fed as is ours to-day. Unfortunately this implies a certain excess of food, and therefore, waste. In the camps at home the waste of food has caused an outcry in the press. In some cases a large quantity of perfectly good bread has been used for manure. The authorities are endeavoring to remedy the evil, and an order has been issued stating that waste of bread is becoming a serious matter and calls for constant supervision of the commanding officers. It does not appear to be fully understood that if the army ration provides more bread than necessary, flour for cooking purposes can be drawn in lieu of bread.

"WATER-BITE" IN THE TRENCHES

Soldiers standing for many hours in the trenches with their legs immersed in cold water have suffered in considerable numbers from what was at first termed frost-bite but later was distinguished from that condition, and termed "water-bite." The lesions differ considerably from those produced by exposure to severe cold, to which the term frost-bite is properly applied. In frost-bite the parts commonly affected are those to which the atmosphere has direct access, such as the tip of the nose, the lobe of the ear or the hand. In water-bite, on the other hand, lowness of the air temperature seems to be one of several factors and is never so intense as in frost-bite. Tightness of the boots and putties constricting the leg and interfering with the circulation appears to be an important factor. This tightness may be brought about by swelling of the stocking because of absorption of water. In milder cases there is little to see; the patient complains generally of anesthesia in the toes and ball of the foot, combined with hyperesthesia of the arch and sides of the foot. In more severe cases the feet are swollen, red and blistered, and the patient's temperature rises to 102 and 103 F. There may be edema of the legs and subcutaneous hemorrhages on the toes. In more advanced cases the skin becomes broken. In rare cases gangrene occurred, but the affected parts are swollen and dark instead of shrunken and dead white as in frost-bite. Taken as a whole, water-bite very much resembles bad chilblains. As a means of prevention, the soldiers are instructed before going into the trenches to rub their boots well inside and out with whale oil, to wash and dry their legs and then rub in whale oil or any animal grease they may prefer. They are also directed to avoid tight boots or constricting the legs in any way.

The Lowest Birth Rate on Record.

In the quarterly return just published by the registrar general, it is stated that the birth rate in the last quarter of the past year was 22.2 annually per thousand of the population, which was 2.4 per thousand below the mean birth rate in the ten preceding fourth quarters, and 0.6 per thousand below the rate in the corresponding period of 1913. The deaths for the fourth quarter of 1914 numbered 130,882, being 0.6 per thousand below the mean rate in the ten preceding fourth quarters, but 0.7 above the rate recorded in the corresponding period of 1913. Infantile mortality was equal to 105 per thousand, or 17 per thousand below the average in the ten preceding fourth quarters. The revised estimates of the population of England and Wales show that 878,822 births and 516,778 deaths were registered in 1914. The natural increase of population by excess of births over deaths was therefore 362,044, the average annual increase in the preceding five years having been 385,153. The number of persons married during the year was 588,174. The marriage rate in 1914 was 15.9 persons per thousand of the population, an increase of 0.6 per thousand on the average in the ten years 1904-1913. The birth rate in 1914 was 23.8 per thousand of the population, being 0.3 per thousand below the rate in 1913, and lower than the rate in any other year on record. Compared with the average in the ten years 1904-1913, the birth rate in 1914 showed a decrease of 2.1 per thousand. The death rate in 1914 was 14.0 per thousand, which was 0.2 per thousand above the rate in 1913; compared with the average rate in the ten years 1904-1913, the death rate in 1914 showed a decrease of 0.7 per thousand.

Death of a Victim of Leprosy Research

Sir George Turner, M.B., M.R.C.S., died at Colyton, Devon, at the age of 79. He graduated at Cambridge and took up public health work. He was appointed health officer of Portsmouth and later of Hertfordshire, and Essex, as well as lecturer on hygiene at Guy's Hospital. In 1895 he became health officer of Cape Colony. At that time rinderpest was doing great damage among the cattle, and was being investigated by Koch in order to discover a cure. He was recalled before his work was complete, and Dr. Turner continued it and succeeded in producing a method of prevention by simultaneous inoculation of virus and serum. Within a year, rinderpest was stamped out. On the outbreak of the South African War, he was appointed sanitary adviser to the army, and at its close, health officer to the Transvaal. Though busily occupied, he devoted his spare time to the study of leprosy. On reaching the age limit he retired and returned to England, where he continued the bacteriologic study of leprosy. One day while shaving, he noticed marks on his hand which he recognized as the stamp of the disease—a diagnosis of which was confirmed by specialists—but he continued his bacteriologic researches. The king on his own initiative conferred the honor of knighthood on Dr. Turner after this disaster, and he was described in the *Times* at the time as "another Father Damien."

PARIS LETTER

Paris, March 11, 1915.

The War

ADVANTAGES OF CONSERVATIVE SURGERY IN THE AMBULANCES AT THE FRONT

At one of the late meetings of the Societé de chirurgie, Dr. E. Marquis communicated the results of sixty-five severe injuries of the limbs in which he attempted conservative treatment employing active surgical measures (debridement, disinfection, drainage and removal of sequestra). The patients were the wounded who could not be removed after the battle of the Marne because they were too severely injured. In the case of thirty-six of these patients for whom amputation was considered, the application of conservative principles permitted the saving of a severely injured limb. Only sixteen extemporaneous amputations were made, and that in extremely severe cases (eight were fatal and eight patients recovered). Among the sixty-five wounded in question, eight died from complicating lesions and five died of their wounds without amputation. Two of these died with tetanus. The three others were so severely injured that they probably would not have supported amputation.

TREATMENT OF FROST BITES OF THE FEET

The regretted Dr. Lucien Jacquet, whose death I noted recently (The Journal, Jan. 23, 1915, p. 356), had devised under the name of the biochemical method a treatment for frost bites consisting of a sort of gymnastic of the affected member associated with an elevated position. Dr. L. Brocq, physician to the hospitals of Paris, has been able to try this procedure in his service of the hospital Saint-Louis. A board is placed on the bed lengthwise, resting by both ends on the transverse bars of the bedstead. An inclined plane is thus obtained on which are placed the pillows intended to receive the limbs of the patient. The patient thus has his legs and especially the feet much higher than the rest of the body. Every hour, at a signal given by the nurse, the patients with the trunk and the head lying flat on the bed put both hands under one thigh and lift the lower limb vertically so that it forms a right angle with the plane of the bed. Holding it in this position, they make all possible movements of flexion, extension and circumduction with their toes and ankles. At the end of five minutes, at a new signal, the same maneuver is executed with the other limb. After the first twenty-four hours, this treatment produces a genuine relief.

On the other hand, Dr. Leon Bernard, professor agrégé to the Faculté de médecine de Paris and physician to the hospitals, has found it desirable in a case of frost bite at first to surround the limb with compresses soaked in hot physiologic salt solution.

RESEARCHES ON GAS GANGRENE

It is well known that in the present war gaseous gangrene has been frequently observed as a complication of wounds, particularly those produced by the explosion of shells. Dr. Weinberg of the Pasteur Institute of Paris has observed that the *Bacillus perfringens* always occurs among the germs that are found in the wounds invaded by gaseous gangrene. He has concluded from this that this bacillus may be the pathogenic cause of this complication. In fact, the inoculation of animals with a culture of *Bacillus perfringens* was regularly followed by the production of a gaseous phlegmon. Weinberg has undertaken to prepare a vaccine by using a twenty-four-hour culture of *Bacillus perfringens* on glucose bouillon. The bacteria are washed in physiologic salt solution and heated to 60 C. The vaccine as prepared contains from fifteen to twenty million bacteria per cubic centimeter. This vaccine injected daily in a dose of from five to twenty million bacteria was perfectly well borne by the patients, who presented no reaction, local or general.

In order to meet the needs of severe cases on a rapid march, Weinberg has also prepared an antiperfringens serum which he obtains by intravenous injection of a horse, using at first dead cultures and then living bacteria of the kind which he used in preparing the vaccine. This serum used on guinea pigs produced both prophylactic and curative results. In a severe case the patient was injected with 22 c.c. of this serum; the injection was followed by a rapid improvement.

A Monument to Dr. Emile Reymond

The glorious and tragic death of Dr. Emile Reymond, senator from the department of the Loire, will be recalled. He left for the front as pilot of an aeroplane and was killed in the course of an aerial reconnaissance (The Journal, Nov. 21, 1914, p. 1868). A committee has just been formed under the patronage of the president of the republic to erect a monument for him.

BERLIN LETTER

Berlin, March 2, 1915.

The War

THE WOUNDED

In Berlin, since the beginning of the war, about 30,000 beds have been at the disposal of the military authorities for the treatment of the sick and wounded. Of these at present a large number are unoccupied. In the western district, our losses, on the whole, have considerably diminished because, in spite of daily battles, the conflicts are of slight extent owing to the stationary nature of the warfare. The relatively small number of wounded remain in the western hospitals and only a few reach Berlin. We receive a larger number from the East, but only a fraction of those wounded in the great battles in that region come hither. A portion are kept in the hospitals of the great Polish cities and another in the hospitals of the eastern provinces. On the whole, it has been shown that the number of severely wounded has decreased when compared with former wars, and that of the slightly wounded has not materially increased. From this it is a necessary conclusion that at present, in a war of long duration, the wounded who have recovered return to the front in greater number than formerly. In the campaign in German Southwest Africa, of the 369 who were wounded by the 88 bullet, 46 per cent. were again ready for field service after a period of treatment of 1.7 months on the average. These wounds affected by no means only the soft parts, but there were among them such as in the beginning seemed very severe, namely, twenty-six of the bones and joints, twelve of the lungs and two of the abdomen. These experiences agree with the reports from the Russo-Japanese War, according to which among 7,631 men wounded with small caliber bullets, of those who were able to return to the front, about 71.19 per cent. had skin and flesh wounds, about 22.44 per cent. wounds of the bones and joints, and 6.44 per cent. of the intestines, blood vessels and nerves. Of the Russians and Japanese, in general, 60 per cent. of the wounded returned again to the front, but of the Germans during the war of 1870-1871, only 17.6 per cent. Probably among those quickly recovering there will be found more who have been wounded by shrapnel bullets, fragments of shells and weapons at close hand (hand grenades) than one would expect at first thought. In order to regulate the arrangements of hospitals, especially the care of the wounded, a number of emeritus surgeons-general have been appointed as inspectors of military hospitals by the medical division of the ministry for war. Their function is to visit the reserve and association hospitals in the home districts, to learn the need of the hospital chiefs, to stimulate improvements, and to superintend the transfer of the sick, especially their dismissal to special institutions when that is necessary.

USEFULNESS OF AMBULANCE DOGS

With reference to the importance of dogs in war, the opinion of experts is still at variance. It will be possible to reach definite conclusions on the basis of this war, in which dogs have been used in the medical service for a longer time and in greater numbers than ever before. In the West there are at least 500 animals employed, and as has been reported, they have been installed in the East for some weeks at the instance of Field Marshal von Hindenburg. Repeated reports of the leaders of these ambulance dogs show how useful these animals have shown themselves in finding the wounded, and indicate that many wounded who had been overlooked by the ambulance corps were sought out by an ambulance dog. Courses for the training of these animals and for their leaders have been established.

DEATH OF PROWAZEK

Typhus fever, which has been introduced among us by the Russian prisoners, has exacted another victim of the medical profession. February 17, von Prowazek, the parasitologist head of a department in the institute for naval and tropical diseases, Hamburg, died at the age of 39. Prowazek was an Austrian by birth. After he had been, for a short time, assistant at the institute for experimental therapy at Frankfort-on-the-Main under Ehrlich and at the zoological institute at the University of Munich under Hertwig, he was called to Berlin at the suggestion of Fritz Schaudinn, who was at that time head of the department for investigation of protozoa in the imperial health office. When Schaudinn accepted the call to the institute for tropical hygiene at Hamburg, Prowazek became his successor in the imperial health office, and after the premature death of the talented Schaudinn, he succeeded him at Hamburg (1907). He was on intimate terms with Schaudinn and not only followed in the happiest way the far-seeing plans of this investigator after his death, but also enriched science with many brilliant independent ideas and observations. The studies on the physiology and biology of the cell and of protozoa in particular, his investigations on variola and vaccine, on trachoma, blennorrhea and other diseases of the eye, and the conception founded thereon of the widely distributed chlamydozoan group as the cause of infections (smallpox, rabies, various eye diseases and tropical diseases) made him an important authority among investigators in the field of modern study of protista. He made many journeys for research, and as a result of his wide knowledge, for instance, with reference to botanic and ethnographic subjects, he left a number of reports of his travels which are of value, not only for his special science but also [illegible] etc. Also his larger works, "The [illegible] Protozoa," "Physiology of the [illegible] Marianen" are highly regarded scientifically. Of late years, Prowazek busied himself among other things with the investigation of the causes and methods of transmission of typhus fever. He made numerous journeys in the foreign countries for the study of the disease, and was again entrusted with these investigations by the military authorities when the pest showed itself again in the camp of the imprisoned Russians at Kottbus. He fell a victim to this dangerous disease.

AN EQUIPMENT CAR FOR THE GERMAN CENTRAL COMMITTEE OF THE RED CROSS

Scarcely in any theater of war is the expeditious care of our wounded beset with so great difficulties as in the east. In the first place, there is a lack of suitable rooms with the most necessary sanitary equipments to which the wounded and sick can be brought. As there are only very few and often no railroad communications, the supply of necessary medicines, bandages and foodstuffs is very difficult and must be accomplished by wagon, in the most favorable case, by automobiles. Moreover, the Russian roads are, as is well known, in such a wretched condition that one can get on only very slowly with automobiles. As a result of these difficulties, the field hospitals and bandaging stations occasionally lack the most important articles. In order to relieve this unavoidable nuisance to some extent and to assist the military medical service, the central committee of the Red Cross in the east has arranged a "flying depot" for all medical supplies and foodstuffs. For this purpose, a mixed train car with five third class sections and three second class sections was taken. In the second class sections, all the baggage racks were removed and wooden racks built in. By using the seat benches, six stories were formed in each section with single compartments, thirty altogether, in which all the necessary material could be placed in order. The space under the benches was used for the storing of medicines and wines. Even a smoking room is provided in the servants' quarters. The second class sections were arranged for the reception of the wounded. On account of the danger of fire, a car with electric lighting was selected. While the articles stored in the car just described are of service for emergencies, those placed in a second freight car serve for the supplementing of the supplies. In this way, all of the hospitals can be supplied with the necessary material immediately. The cars are placed at the railroad station nearest to the field hospital, and the goods are taken from there by automobile to the bandage stations and field hospitals, which are situated immediately behind the fighting line.

Association News

THE SAN FRANCISCO SESSION

Revised List of Hotel Headquarters

A revision of the headquarters of the several sections is announced by the Committee on Arrangements for the San Francisco Session. In The Journal, Feb. 20, 1915, page 680, a preliminary announcement was made, designating the hotels which have been selected for headquarters of certain of the sections. The extended and revised list follows:

General Headquarters	Palace
Practice of Medicine	Palace
Surgery, General and Abdominal	St. Francis
Obstetrics, Gynecology and Abdominal Surgery	St. Francis
Ophthalmology	Fairmont
Laryngology, Otology and Rhinology	Fairmont
Diseases of Children	Cartwright
Pathology and Physiology	Bellevue
Stomatology	Plaza
Nervous and Mental Diseases	Chancellor
Dermatology	Plaza
Preventive Medicine and Public Health	Clift
Genito-Urinary Diseases	Manx
Hospitals	Inside Inn
Orthopedic Surgery	Stewart

A list of hotels available for those who attend the San Francisco meeting was published February 20, advertising page 21. A more complete list will appear in a later issue.

Attention is again called to the suggestion of the subcommittee on hotels urging that reservations be made through this committee. In order that the committee may have the information necessary so that arrangements may be made which may meet the convenience of the visiting Fellows, it is suggested that the coupon at the bottom of the above-mentioned list of hotels be used in addressing the subcommittee on hotels.

On page 47 of the advertising section of this issue appears an announcement of the San Francisco Session. Those who contemplate attending the session and who follow the suggestion with which this advertisement closes will be put in touch with the railroads in order that they may be supplied with detailed information which will enable them to determine the route that best suits their convenience in making the journey to and from San Francisco. For general descriptions of the various routes see Association News in previous issues of this volume, pages 457, 527, 604, 924 and 1011.

PERSONALLY CONDUCTED TOURS

A number of requests have been received at this office asking for information concerning personally conducted tours. It will be recalled that an announcement was made in The Journal, February 6, page 528, of the New York and New England Special which is to be conducted under the management of the McCann tours, 1328 Broadway, New York.

CHICAGO MEDICAL SOCIETY SPECIAL TRAIN

A train is being arranged by the Chicago Medical Society. Dr. R. R. Ferguson, 3923 North Keeler Avenue, Chicago, is chairman of the committee, and the tour is under the management of the Gregory Tours, Lytton Building, Chicago. This party will travel by special train, leaving Chicago, June 17, at 10 p. m., over the Rock Island lines to Colorado Springs; from there, by way of the Denver and Rio Grande and the Western Pacific to San Francisco. The party will leave San Francisco at 8 a. m., June 28, for Los Angeles and San Diego, leaving Los Angeles at 4 p. m. on the evening of June 30, returning by way of Salt Lake City and Denver, and is scheduled to reach Chicago at 7:30 a. m., July 4. Further information concerning this tour can be obtained by addressing either the chairman of the committee, or the Gregory Tours.

Marriages

Jacob T. Cramer, M.D., Muskegon, Mich., to Miss Clara B. Ruoff of Grand Rapids, Mich., February 23.

Western Cass Loomis, M.D., to Miss Myrtle Lillian Windsor, both of Wichita, Kan., March 18.

John Patrick Chapman, M.D., to Miss Mary Justina Huff, both of Philadelphia, March 19.

Theodore Saunte Crosby, M.D., to Mrs. Stella Olejnk, both of Wakefield, Mich., March 11.

Joseph A. Villien, M.D., Maurice, La., to Miss Maude A. Gaidry of Montegut, La., March 9.

Ernest William Frey, M.D., to Miss Mary Jeannette Disney, both of Baltimore, March 22.

Deaths

Samuel Claggett Chew, M.D. University of Maryland, Baltimore, 1858; LL.D. University of Maryland, 1907; professor of materia medica in his alma mater from 1864 to 1866; professor of medical practice until 1907 and a year later made emeritus professor of medicine; dean of the University of Maryland from 1874 to 1879 and twice president of the Alumni Association; twice president and thrice vice-president of the Medical and Chirurgical Faculty of Maryland; consulting physician to Johns Hopkins Hospital; president of the board of trustees of the Peabody Institute and member of the board of regents of the University of Maryland; died at his home in Roland Park, Baltimore, March 22, from heart disease, after an illness of more than a year, aged 77.

William Hunt Hall, M.D. New York University, New York City, 1858; a member of the Medical Society of the State of New York and New York Academy of Medicine; assistant surgeon of the Thirty-Sixth New York Volunteer Infantry during the Civil War and later medical director of the Grand Army of the Republic; a member and assistant surgeon in the Thirteenth Infantry, N. G. S. N. Y.; for many years a practitioner of Saratoga Springs, N. Y.; died suddenly at his home in Camden, Maine, February 2, from heart disease, aged 76.

Henry Smith Noble, M.D. College of Physicians and Surgeons in the City of New York, 1871; a Fellow of the American Medical Association; a member of the American Medical Psychological Society and New York Neurological Society; for thirty-six years a member of the staff of the State Hospital for the Insane, Middletown, Conn., and for sixteen years its superintendent; one of the best-known alienists of the United States; died at the home of his nephew in Waterbury, Vt., March 16, from diabetes, aged 69.

Robert J. Massey, M.D. Medical College of Georgia, Augusta, 1850; a pioneer practitioner of Atlanta, Ga.; surgeon in the Confederate service throughout the Civil War; who, while on duty in Milledgeville, saved the state library and its valuable records from destruction; for several years surgeon to the Confederate Soldiers' Home, Atlanta; a well-known historical writer, making a specialty of the early history of Georgia; died in a sanatorium in Atlanta, March 18, aged 86.

Austin White Alvord, M.D. University of Michigan, Ann Arbor, 1868; a member of the Michigan State Medical Society and once its president; also president of the Calhoun County (Mich.) Medical Society; a member of the Michigan State Board of Registration in Medicine since 1899; a veteran of the Civil War and for many years a practitioner of Battle Creek, Mich.; surgeon to the Nichols Memorial Hospital, Battle Creek; died in St. Petersburg, Fla., March 23, aged 75.

John Cheves Haskell, M.D. Southern Medical College, Atlanta, Ga., 1897; Medical College of the State of South Carolina, 1912; a member of the South Carolina Medical Association; acting assistant surgeon, U. S. Army at Fort Bliss, Tex., during the Spanish-American War; a specialist on diseases of the eye, ear, nose and throat of Charleston; died in St. Joseph's Hospital, Atlanta, Ga., March 17, aged 42.

George Dickinson Thayer, M.D. New York University, New York City, 1881; formerly a Fellow of the American Medical Association and president of the Dickinson Hospital Medical Club, Northampton, Mass.; for nine years city physician of Northampton and for thirty-two years county physician of Hampden County; died at his home in Northampton, March 16, from heart disease, aged 57.

John Edward Heise, M.D. Hospital College of Medicine, Louisville, 1898; who soon after graduation became a veterinary surgeon and devoted his entire time and attention to this subject; local veterinary surgeon to the Southern Railroad; for four years a member of the board of county commissioners of Richmond County, S. C.; died at his home in Columbia, S. C., March 12, aged 43.

Michael Coyle Drennan, M.D. University of Pennsylvania, Philadelphia, 1863; medical director and rear admiral, U. S. N. (retired); surgeon in the Navy during the Civil War, and retired with the rank of next higher grade to that held on active list, and on account of incapacity resulting from an incident of service; died at his home in Easton, Pa., March 23, aged 76.

Thomas Emerson Duncan, M.D. Western Pennsylvania Medical College, Pittsburgh, 1897; local surgeon at Wellsville, Ohio, for the Cleveland and Pittsburgh Division of the Pennsylvania System; county physician of Columbiana County, Ohio, and a member of the Wellsville Board of Health; died in that place, March 13, from pneumonia, aged 42.

Clarence Milton Swale, M.D. Rush Medical College, 1895; a Fellow of the American Medical Association and local surgeon of the railways centering in Mason City, Iowa; a well-known surgeon of central Iowa; died at his home in Mason City, March 21, from septicemia, due to an operation wound, aged 43.

Thomas Burnett Norris, M.D. Starling Medical College, Columbus, Ohio, 1859; a member of the Ohio State Medical Association and Columbus Academy of Medicine; for more than thirty-six years a practitioner of Alton, Ohio; died at the home of his daughter in Columbus, Ohio, March 18, aged 87.

Gilbert V. Chamberlain, M.D. Detroit Medical College, 1874; a Fellow of the American Medical Association; in 1892 president of the Michigan State Medical Society; and once a member of the common council of Flint, Mich.; died at his home in Flint, March 18, from pneumonia, aged 65.

Michael Sullivan, M.D. Queen's University, Kingston, Ont., 1858; emeritus professor of surgery in his alma mater; formerly mayor and alderman of Kingston and since 1884 a member of the Upper House of the Dominion Parliament; died at his home in Kingston, January 25, aged 76.

Gustav Fernitz, M.D. Louisville (Ky.) Medical College, 1881; a member of the Illinois State Medical Society; for fifteen years editor of the Louisville *Anzeiger* and for the last thirty years a resident of Chicago; died at his home, March 21, from cerebral hemorrhage, aged 70.

William Breckenridge Smith, M.D. University of Maryland, Baltimore, 1899; a Fellow of the American Medical Association and a practitioner of Hampton, Va.; who sailed for Bristol, England, February 25, as surgeon of the steamer *Victoria*; died in Bristol, March 10, aged 41.

James H. Jaquith, M.D. University Medical College, Kansas City, Mo., 1894; a member of the Kansas Medical Society; local surgeon at Emporia, Kan., for the Missouri, Kansas and Texas Railroad; died in St. Mary's Hospital, Emporia, March 19, from pneumonia, aged 49.

Howard Lowrie Baird, M.D. Pulte Medical College, Cincinnati, 1889; of North Side, Pittsburgh; for several years deputy internal revenue collector at Pittsburgh and later managing director of the United Storage Company; died in Los Angeles, March 12, aged 70.

John Giallard Black, M.D. Medical College of the State of South Carolina, Charleston, 1868; a Confederate veteran; once a senator and twice a member of the house of representatives of South Carolina; died at his home in Blacksburg, S. C., March 14, aged 72.

Abraham W. Porter, M.D. Eclectic Medical Institute, Cincinnati, 1876; for two terms a member of the Indiana State Legislature from Martin County; died at his home in Loogootee, Ind., March 14, from septicemia following a frost-bite, aged 79.

Julius Paul Lauer, M.D. University of Pennsylvania, Philadelphia, 1908; a Fellow of the American Medical Association, and a specialist on diseases of children; died at his home in Philadelphia, March 16, from typhoid fever, aged 39.

Smith Armor, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1851; said to have been the oldest alumnus of that institution and the oldest practitioner of Pennsylvania; died at his home in Columbia, March 14, aged 91.

William Henry Shaw, M.D. University of Michigan, Ann Arbor, 1868; for many years president of the bank at Monroe, Iowa, where he had practiced since his graduation; died at his home in that place, March 14, from pneumonia, aged 74.

Andrew B. Harrison (license, Florida, 1899), formerly agent of the State Board of Health at Monticello, Fla., where he practiced for many years; died at the home of his daughter in Columbia, Ala., March 14, aged 80.

Rezier S. Farr, M.D. Medical College of Virginia, Richmond, 1867; a Confederate veteran, with service for two years under General John S. Mosby; died at his home in Belton, Tex., March 16, aged 75.

Nancy M. Miller, M.D. New York Medical College and Hospital for Women, New York City, 1867; one of the first women to practice in New York; died at her home in New York City, March 17, aged 84.

William Orlando Harland, M.D. Rush Medical College, 1877; for many years a practitioner of Mahomet and Mansfield, Ill.; died at his home in the latter city, March 16, from angina pectoris, aged 58.

Greensbury W. Freeny, M.D. University of Maryland, Baltimore, 1862; for many years a member of the Board of Education of Pittsville, Md.; died at his home in that city, March 15, aged 78.

A. Judson Berry, M.D. Missouri Medical College, St. Louis, 1882; formerly city physician of Warrensburg and Johnson County, Mo.; died at his home in Warrensburg, March 11, aged 62.

Smith W. Bellinger, M.D. University of Nebraska, Omaha, 1904; a member of the Iowa State Medical Society; died at his home in Council Bluffs, Ia., March 15, from nephritis, aged 37.

L. Morse Able, M.D. Medical College of Georgia, Augusta, 1890; a practitioner and druggist of St. Matthews, S. C.; died suddenly at that place, February 27, from myocarditis, aged 45.

William F. Betcher, M.D. Milwaukee Medical College, 1902; formerly of Marathon, Wis.; died at the home of his mother in Rochester, Minn., March 11, from pulmonary hemorrhage, aged 40.

Oliver G. Getty, M.D. University of Maryland, Baltimore, 1878; until 1893 a practitioner of Grantsville, Md.; died at his home in Meyersdale, Pa., March 14, from cerebral hemorrhage, aged 59.

Peter Augustus Johnson, M.D. Long Island College Hospital, Brooklyn, 1882; a member of the Medical Society of the State of New York; died at his home in that city, February 24.

Peter Nilsson, M.D. Eclectic Medical College of the City of New York, 1898; lecturer in gross pathology in his alma mater; died at his home in New York City, March 21, aged 46.

Fernando Charles Putnam Newman, M.D. Long Island College Hospital, Brooklyn, 1895; of Brooklyn; died in St. John's Hospital in that city, March 3, from rheumatism, aged 44.

Cyrus B. Merchant, M.D. Tulane University, New Orleans, 1886; formerly a member of the State Medical Association of Texas; died at his home in Quinlan, Tex., Dec. 29, 1914.

George H. Chappell (license, years of practice, Michigan, 1900), for many years a practitioner of Grand Rapids, Mich.; died at his home in that city, March 11, from pneumonia, aged 73.

Burnett V. Buffington, M.D. Eclectic Medical Institute, Cincinnati, 1873; for fifty-two years a practitioner of Ohio; died at his home in Marysville, March 11, from cystitis, aged 75.

Macpherson Smith, M.D. Albany (N. Y.) Medical College, 1855; who many years ago gave up practice for business in New York City; died at his home in Albany, January 25, aged 82.

John C. Mueller, M.D. St. Louis College of Physicians and Surgeons, 1889; Sioux City (Iowa) College of Medicine, 1900; died at his home in Lamotte, Iowa, March 11, aged 48.

Frank Arthur Searle, M.D. Albany (N. Y.) Medical College, 1914; an intern in the Albany Hospital; died in that institution, January 20, from malignant endocarditis, aged 24.

Thomas L. Keys, M.D. University of Louisville, 1885; formerly a Fellow of the American Medical Association; died at his home in Rockwall, Tex., January 11, aged 58.

William Michael Cavano, M.D. Northwestern University Medical School, Chicago, 1900; died at his home in San Francisco, about February 11, from myocarditis, aged 48.

James P. Thompson, M.D. Leonard Medical School, Raleigh, N. C.; a colored practitioner of Elberton, Ga.; was shot and killed in his office in Elberton, February 19.

Joseph Teel Farrar, M.D. California Eclectic Medical College, Los Angeles, 1891; of Berkeley, Cal.; died in the Roosevelt Hospital in that city, March 8, aged 64.

Harvey Scott Pitman, M.D. University of Louisville, 1873; of East Bernstadt, Ky.; a Fellow of the American Medical Association; died January 25, aged 69.

F. G. Bright, M.D. Kentucky School of Medicine, Louisville, 1868; of Commerce, Mo.; died in a hotel in Evansville, Ind., March 22, from heart disease, aged 74.

Thomas Jax Cole, M.D. Eclectic Medical Institute, Cincinnati, 1875; died at his home in Van Wert, Ohio, Nov. 30, 1914, from cerebral hemorrhage, aged 60.

William C. Crooks, M.D. University of Pennsylvania, Philadelphia, 1866; died at his home in Philadelphia, March 14, from cerebral hemorrhage, aged 75.

George H. Littlefield, M.D. University of Vermont, Burlington, 1881; died at his home in Glenfield, N. Y., March 18, from valvular heart disease, aged 62.

Jesse Jacob Foote, M.D. New York University, New York City, 1894; died at his home in Potsdam, N. Y., March 22, from cerebral hemorrhage, aged 48.

Horace M. Julian, M.D. University of Maryland, Baltimore, 1885; died at his home in St. Louis, January 30, from cerebral hemorrhage, aged 53.

Brice M. Hughes, M.D. Jefferson Medical College, 1868; a retired practitioner of Milan, Tenn.; died at his home in that city, January 2, aged 81.

James Anderson (license, years of practice, Illinois, 1878), died at his home near Louisville, Ill., about February 27, from heart disease, aged 89.

Charles Osborne Tupper, M.D. Jefferson Medical College, 1886; died at his home in Brooklyn, February 22, from influenza, aged 53.

A. Presley (license, Texas, 1907), for thirty-five years a practitioner of Texas; died at his home in Yoakum, February 28, aged 64.

John Littell Tarlton, M.D. Tulane University, New Orleans, 1908; of Lydia, La.; died in New Orleans, March 18, aged 28.

Frank W. Flower, M.D. Hahnemann Medical College, Chicago, 1876; died at his home in Carthage, Mo., March 7, aged 77.

Finzalam M. Perras (license, Ontario, 1880), died at his home in Gracefield, Que., Dec. 17, 1914, from senile debility, aged 77.

James W. Wells, M.D. Western Reserve University, Cleveland, 1872; died at his home in Cushing, Okla., January 28, aged 74.

E. L. Tillinghast, M.D. Tulane University, New Orleans, 1861; died at his home in Mooringsport, La., February 23, aged 75.

Joseph A. Weaver, M.D. Atlanta (Ga.) Medical College, 1891; died at his home in Buena Vista, Ga., March 5, aged 47.

H. T. Garnet, M.D. University of Louisville, Ky., 1862; died at his home in Keytesville, Mo., February 16, aged 75.

Abram De Graff, M.D. Albany (N. Y.) Medical College, 1858; died at his home in Guilderland, N. Y., January 1.

Henry W. Thomas, M.D. Atlanta (Ga.) Medical College, 1893; died at his home in Macon, Ga., March 6, aged 47.

Albert Erasmus Schulz, M.D. University of Toronto, Ont., 1904; died at his home in Elmira, Ont., Dec. 23, 1914.

DeWitt C. Collins (license, Mississippi, 1882), died at his home in Pleasant Hill, Miss., March 14, aged 84.

J. J. Lemon (license, Mississippi), died at his home in Biloxi, Miss., recently, aged 90.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

PEACOCK'S BROMIDES AND CHIONIA

Reports of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following reports on Peacock's Bromides and Chionia, sold by the Peacock Chemical Company, St. Louis.

W. A. Puckner, Secretary.

PEACOCK'S BROMIDES

This is another nostrum of the ordinary mixture type. Of the various statements concerning composition furnished by the company, the following gives as much information as any:

> "In Peacock's Bromides it is designed to unite fifteen grains of the purest bromides of Potassium, Sodium, Ammonium, Calcium and Lithium, in such proportion as to insure the bromine equivalent of potassium bromide. Each fluid drachm about equals, in medicinal strength, fifteen grains of potassium bromide."

The label on the trade package indicates the presence of 10 per cent. of alcohol. It will be observed that the proportions of the different bromids are not stated. Hence, the assertion of the Peacock Chemical Company that "there is nothing secret in this compound" cannot be true. A physician prescribing it cannot know how much of each ingredient he is giving; it may be 14½ grains of potassium bromid and ⅛ grain each of sodium, ammonium, calcium and lithium bromids, or any other of an enormous number of possible permutations of the proportions.

While the theoretical basis of bromid medication is not yet fully settled, the weight of the best pharmacologic authority and clinical experience is decidedly against the dogmatic claim of the Peacock Chemical Company that "the best result is obtained by prescribing a combination of bromides." And if there were any advantage in prescribing such a combination, the physician ought to regulate the proportions.

The following quotations are from the advertising matter:

> "Being uniform in purity and therapeutic power, it can be relied upon to produce clinical results which it is believed cannot be obtained from the use of commercial bromide substitutes."
>
> "The purity, quality and constant uniformity of this high grade product have long made it a standard bromide preparation."

These claims are unfounded. The analyses published in the concern's own advertising "literature" show a variation of 8 per cent., in the bromid content, which certainly indicates a sufficient lack of uniformity.

Again quoting:

> "In order to insure the best results the bromides must be pure, i. e., free from alkalies and almost free from chlorides. The U. S. P. allows three per cent. of chlorides. Peacock's Bromides contains the least possible amount of this impurity. Bromism is therefore less frequent in those cases in which this preparation is employed."

In view of the claim of low chlorid content, it is interesting to note that the analyses above referred to show that the chlorid content is actually higher than that of some other bromid preparations on the market.

The claim of merit on the ground of freedom from chlorids is, of course, absurd, and must be regarded as an attempt to play upon the credulity of the doctor. As a matter of fact, the average individual takes with his food many times the amount of chlorid he could possibly take in contaminated bromid. The 10 per cent. of alcohol would undoubtedly have a greater disturbing influence on the bromid action than the amount of chlorid that might be present in any bromid on the market.

Then we have the statement that, owing to this freedom from chlorids:

> "Bromism is therefore less in those cases in which the preparation is employed."

Sodium chlorid, even as an impurity, would retard rather than favor the development of bromism; sodium chlorid is even used as an antidote in bromid poisoning.

The therapeutic claims lay stress on the value of the bromids in sleeplessness, epilepsy, sexual excitement, tetanus, infantile convulsions, chorea, delirium tremens, the climacteric, migraine, headache due to pelvic conditions, ovarian neuralgia, etc. These and other claims, while too vague to be branded as falsehoods, are misleading and not in accordance with modern teaching or practice; the latter recognize the limitations of bromid therapy as well as its scope and advantages. For instance, in epilepsy:

> "Large doses must be given if we expect to control the convulsions. We are to be guided by the frequency and the severity of the seizures, the saturation of the system by bromides and by the age of the patient. The rule is 'large doses for long periods but with occasional periodic monthly or quarterly omissions.' When we have succeeded in controlling the convulsions in so far as greatly diminishing the frequency and severity of the attacks we may then attempt to decrease the dose, but the results must be carefully watched. Increase in frequency of convulsive seizures is a sign that the bromides must again be pushed as before."

The best modern clinical teaching concerning the treatment of epilepsy is that bromids should be avoided except as a last resort. Bromids do not cure, and the amount necessary to control the convulsions may produce a degree of mental hebetude that is a greater evil than the disease itself.

It is recommended that the preparation be held ineligible for admission to N. N. R., because of its conflict with Rules 1, 4, 6 and 10 of the Council, and that this report be published.

CHIONIA

Chionia, according to the statement of the Peacock Chemical Company, which exploits the product, contains 19 per cent. alcohol and is "A Preparation of Chionanthus Virginica."[1]

This preparation is advertised particularly as "a potent hepatic stimulant" and special claims are made for it in various disturbances of the liver:

> "Chionia is very well adapted in the treatment of hepatic congestion owing to its specific action in depleting the portal circulation."

In passive congestion of the liver, the manufacturers would have us believe

> ". . . we have a drug in Chionia that will stimulate the circulation of the blood and lymphatics of the liver as well as stimulate its physiological activities and instead of the patient vomiting the blood an internal depletion of the liver occurs."
>
> ". . . in cases of simple jaundice due to circulatory (congestive) changes in the liver, Chionia is the drug 'par excellence' that will rapidly cause a disappearance of this symptom."

As a prophylactic against eclampsia, if a history of torpidity of the liver is obtained:

> "CHIONIA should be used during the major portion of child-bearing period because it acts directly on the liver stimulating its functional activity."

Chionanthus virginica has never been shown to have the slightest pharmacologic activity and no evidence is presented that its offspring, Chionia, has any therapeutic value whatever in any disturbance of the liver. The promoters themselves indicate a lack of faith in their own preparation, for they advise the use of old and efficient forms of treatment along with Chionia—heart tonics and laxatives in passive congestion of the liver, mercurial purge or podophyllin and sodium phosphate in "biliousness," and quinin in malaria. Finally, with delightful English and elaborate insouciance, they advise in the treatment of eclampsia:

> "In all cases the uterus should be emptied as quick as possible. (Version of Cæsarian Section.)"

The physician who prescribes Chionia promotes a fraud. The Council held Chionia ineligible for admission to N. N. R.

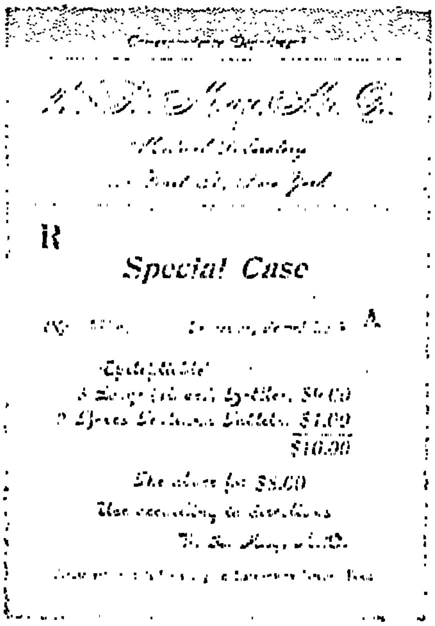
[Editorial Comment: In Peacock's Bromides and Chionia the Peacock Chemical Company has, for a third of a century, been foisting on the medical profession nostrums composed of drugs that are easily combined in any proportion that the physician may want to prescribe. The company has been inflicting on the unthinking physician pseudoscientific rubbish in the form of advertising literature that should long ago have been regarded as an insult to the intelligence of the medical profession. The following medical journals are carrying advertisements of Peacock's Bromides and Chionia:

Alienist and Neurologist
American Journal of Surgery
American Medicine
Archives of Pediatrics
Atlanta Journal-Record of Medicine
Buffalo Medical Journal
Charlotte Medical Journal
Chicago Medical Recorder
Denver Medical Times and Utah Medical Journal
Eclectic Medical Journal
Ellingwood's Therapeutist
Indianapolis Medical Journal
International Journal of Surgery
Lancet-Clinic
Louisville Monthly Journal of Medicine and Surgery
Maryland Medical Journal
Medical Brief
Medical Fortnightly
Medical Herald
Medical Record
Medical Review of Reviews
Medical Sentinel
Medical Standard
Medical Summary
Medical Times
Medical World
Nashville Journal of Medicine and Surgery
New Orleans Medical and Surgical Journal
New York Medical Journal
Pacific Medical Journal
Southern Practitioner
Texas Medical Journal
Texas Medical News
Therapeutic Gazette
Wisconsin Medical Recorder
Woman's Medical Journal]

DR. MAY'S FORMULA

Another Fraudulent Epilepsy Cure

W. H. May, M.D., and his so-called "medical laboratory," both of New York City, conduct a mail-order "cure" for epilepsy. The nostrum, now called "Dr. May's Formula" was, a year or so ago, "Dr. May's Epilepticide, The Wonderful Nerve Restorer." Nor is the change in the wording of the label the only indication that the May concern has recognized the futility—not to say dangers—of a mendacity that expresses itself in cold type. A study of the booklets issued a year or two ago with those published later shows various changes, deletions and modifications that are of interest to


℞
Special Case
$10.00

Photographic reproduction (reduced) of a slip sent out by W. H. May to prospective victims of his mail-order epilepsy cure giving the impression that each case gets individual attention.

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[1] Of Chionanthus Virginica or fringe-tree, the Council on Pharmacy and Chemistry in its 1912 report on "Some Unimportant Drugs" said: "The drug is much used by eclectics and homeopathists, especially as a depurant in hepatic and syphilitic disorders . . . The claims for this remedy are not supported by experimental evidence and clinical reports of its use fail to show indications of discriminating critical observation. It is not noticed by most pharmacologic authorities."

the student of the history of quackery. Moreover, it makes for optimism; it encourages the belief that the public is developing a healthy skepticism of the claims of the quack. For instance:

> *In 1912:* "It *has been proven* that Dr. W. H. May's Scientific Discovery Epilepticide, The Great Nerve Restorer is the Most Successful Remedy for Epilepsy." [Italics ours.—Ed.]
>
> *In 1914:* "It has *often been said* that Dr. May's Formula is the Most Successful *Remedy* for Epilepsy." [Italics ours.—Ed.]
>
> *In 1915:* "It *is said* that The Dr. May Formula is The Proper and Most Successful *Treatment* for Epilepsy *or Fits.*" [Italics ours.—Ed.]

Reproductions of the older and later forms of the May nostrum.

In the older booklet May takes to himself the credit for discovering the cause of epilepsy. Thus:

> "It has been proved by the researches of Dr. May that Epilepsy or 'Fits' is directly caused by the presence of a growth, a rupture of a small bloodvessel or an adhesion in the brain proper or between its membranes.
>
> "Previous to this discovery the causes of this malady were unknown."

And in another pamphlet:

> "Time and space will not permit of a lengthy description of the elaborate experiments and investigations which have been carried on in the Dr. May Medical Laboratories by which these facts were obtained. Suffice it to say that all modern authorities have accepted Dr. May's theory, and that the results following his discovery have been of far more reaching importance than those obtained by Koch or Pasteur."

These astonishing falsehoods are not to be found in the latest May "literature." One may be pardoned for assuming that their absence is due less to an awakened conscience than to a healthy dread of that efficient but overworked arm of the Federal service—the Postoffice fraud-order department.

SCARING THE VICTIMS

"It is not our purpose to worry the unfortunate victims of this dreadful disease," soliloquizes May in his opening paragraphs, "nor shall we seek to terrorize them with harrowing details which beset their path unless they have the right treatment." Far be it from the considerate "Dr." May to frighten those who seek relief from epilepsy via the mail-order route. Yet it is conceivable that the following paragraphs, quoted from the same source, might have at least a slightly disquieting effect on the sufferer:

> "The mother falls on the red-hot stove while preparing the daily meal, the child falls into the fire while playing about the hearthstone.
>
> "The father, while returning from work, falls in the crowded street and his life is crushed out by the cruel car or the rushing automobile. These are but a few instances of violent deaths met by epileptics in New York City during one week."

And then this is hardly reassuring:

> "If you Hesitate, you are Lost! Often Delay means, if not death, a Condition Worse than death — the Maniac's Doom."

The price of the May nostrum is not a fixed quantity. The amount first asked, and that given on the label, is $3 a bottle. Should an order not be forthcoming May comes down to $5 for three bottles and offers to throw in for good measure two boxes of his tablets. This five-dollar combination is asserted to be "sufficient to relieve and permanently cure almost any case of Epilepsy." If this inducement fails to coax the money from the victim the offer comes to send "Two large full-size Sixteen-Ounce Bottles" for a mere $3; still later comes the opportunity to purchase "1 large 16-ounce bottle" for $2.

Having "discovered" the real cause of epilepsy, May naturally decided that "the old method of treating Epilepsy" should be discarded. To take its place " a *new scientific treatment* of the disease has been perfected by which have been obtained the most wonderful and marvelous cures." What is this marvel? Let the chemists of the American Medical Association's Laboratory answer:

CHEMISTS' REPORT[1]

One original bottle of "Dr. May's Formula," manufactured by Dr. W. H. May Medical Laboratory, New York, N. Y., was submitted to the Chemical Laboratory for examination. The bottle contained a brown liquid, having extractive matter present. The specific gravity of the liquid at 15.6 C. was 1.2347. Qualitative tests demonstrated the presence of alcohol, ammonia, potassium, sodium, bromid, chlorid and sucrose. Quantitative determinations yielded the following:

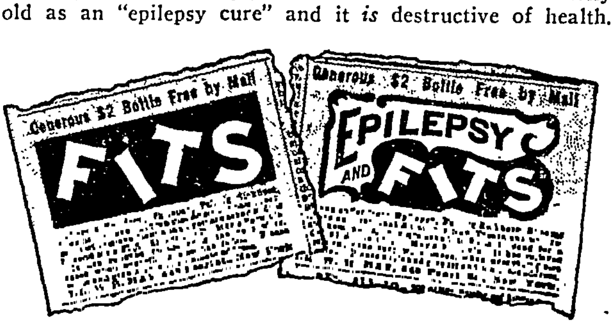
Alcohol (by volume)	4.50 per cent.
Ammonia (NH_3) (by weight)	0.62 per cent.
Potassium (K^+) (by weight)	0.05 per cent.
Sodium (Na^+) (by weight)	2.89 per cent.
Bromid (Br^-) (by weight)	13.29 per cent.
Chlorid (Cl^-) (by weight)	0.03 per cent.
Sugar (by weight)	1.15 per cent.

Essentially each 100 c.c. of the solution contains 4.5 grams of ammonium bromid and 16.0 grams of sodium bromid. Calculating from the bromid determination, each daily dose, one teaspoonful (1 fluidram), contains the equivalent of 15 grains of potassium bromid, and each daily dose (4 teaspoonfuls) corresponds to 60 grains of potassium bromid.

Says May of his nostrum:

> "It is not poisonous; contains no narcotics — no morphin, opium, cocaine or belladonna such as are ordinarily used in other remedies for Epilepsy, and are so destructive to health."

What are the facts: It *is* poisonous; it *does* contain a narcotic; it *is* essentially just such a mixture as is ordinarily sold as an "epilepsy cure" and it *is* destructive of health.


Generous $2 Bottle Free by Mail
FITS
Generous $2 Bottle Free by Mail
EPILEPSY AND FITS

Some typical advertisements of the May "epilepsy cure." The concern confines its advertising largely to rural districts.

In short, the May epilepsy "cure" is foisted on sufferers under claims that are either directly or inferentially misleading and fraudulent and when purchased the victim has obtained what is essentially a bromid mixture having all the dangers—and limitations—of such a mixture. No wonder "patent medicine" fakers are opposed to the declaration of their formulas! It would sound the death knell of their business.

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[1] This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

Correspondence

Conditions at the University of Utah

To the Editor:—The affairs of the University of Utah are at present in a sad state, and for the information and protection of professional men who might receive offers of positions here, especially in the sciences and in the medical school, we desire to present a brief statement of the facts in the case.

A few weeks ago four members of the faculty who had served the institution for from two to ten years each were notified by the president that their services would be dispensed with at the close of the year. This announcement came from a clear sky with no previous trouble; in fact, some of these men had but recently been led to believe that their services were satisfactory. The only reason each could obtain was "the good of the university." Two demotions of professors, one of them a man who has served as head of the English department for twenty-three years, followed immediately.

Naturally the men concerned pressed the president for reasons, and various excuses, not reasons, were offered. These "reasons," moreover, shifted from day to day, as the demands became more urgent from the men and from their colleagues who saw injustice being done them arbitrarily. Finally the agitation became public and reached such a stage that alumni, students, faculty and other organizations petitioned the board of regents to investigate the matter carefully. The excuses offered were in part at least based on mere rumors, which the president has not taken the trouble to investigate. The board promised the public an investigation, but when they met on the evening of March 17 it was only to issue a long statement defending and "whitewashing" the president. They did not investigate or go into the matter in any way other than to accept the president's statement in toto. Fourteen men, including two deans and six other heads of departments, including Professors Ebaugh, Vorhies, Byrnes, Mattill and Sharp of the medical school, promptly resigned. Later it was learned and made public that the statement issued by the board was prepared in a star-chamber session the Sunday before.

This is but the culmination of a policy of distrust and repression exercised by the president and regents for some time, but especially noticeable in the past year or so. We believe that the existence of the university as a free public institution is at stake. No desire for cooperation with the faculty exists in the governing board; their whole attitude toward the faculty is that of a contractor toward his laborers. We cannot bow to that system without losing our self-respect. We desire that those who propose to come here as successors to any one of us shall have knowledge of conditions in advance and come with their eyes open.

Charles T. Vorhies, Ph.D.,
H. A. Mattill, Ph.D.,
Robert G. Sharp,
R. L. Byrnes, M.D.,
University of Utah, Salt Lake City.

[The University of Utah gives the work of the first two years of the medical course, for which two years of regular university work, including courses in physics, chemistry and biology are required for admission. The medical work given, therefore, is intimately related to the university proper and the medical teachers are a part of the regular university faculty. It appears that nearly all of the medical faculty have resigned: W. C. Ebaugh, professor of chemistry; C. T. Vorhies, professor of zoology and botany; Ralph L. Byrnes, professor of bacteriology and pathology; Henry Albright Mattill, professor of physiology and physiological chemistry, and R. G. Sharp, assistant professor of anatomy. These resignations indicate that most of the work in the medical department has ceased, which is a serious matter for the medical students enrolled. The standing of these teachers in the educational world is too high to allow the situation to pass without due explanation.—Ed.]

Rehabilitation and Segregation in Tuberculosis

To the Editor:—In your editorial references to the tuberculosis survey of five Minnesota counties made by me for the State Board of Health (The Journal, March 6, 1915, p. 833), I feel that I must criticize the wording of your conclusions as unintentionally misleading.

You say, "In view of the increasing evidence that both the predisposing causes and the successful treatment of tuberculosis are inseparably bound up with the problems of the home, it is to be hoped that at least a part of the sustained interest in the subject be directed toward a rehabilitation of tuberculous families rather than ill-advised segregation of individual members."

While all students of the tuberculosis problem must agree that rehabilitation of tuberculous families is the necessary and ultimate goal of endeavor in tuberculosis control, it seems that every practical worker along this line must see that segregation (*not* "ill-advised") is the one absolutely essential preliminary step toward this goal.

Rehabilitation is so much more of a problem than segregation and is so hopeless of accomplishment without preliminary segregation that it would seem well to defer active discussion of it until segregation is fairly well under way.

The adverse inference that may be drawn from your expression "ill-advised segregation" is liable to prove embarrassing to those working for helpful legislation along this line.

Further in regard to rehabilitation: In the rural districts the enforcement of comprehensive sanitary measures or housing control comparable to what may be carried out in cities is not feasible under existing conditions. The rural population is less open to suggestion along such lines and is more adverse to reception of material help than the civic population, among whom the tendency to pauperization must be avoided.

Education of the rising generation in the rural districts in matters of disease prevention, preferably through the public educational system, will lead more easily and rapidly to self-rehabilitation than will any direct efforts otherwise applied by the state.

Segregation, aside from being the only practical means of relieving the most urgent and immediate danger of infection, is a valuable educational measure, especially in the rural districts. Segregation opens the way for popular study of disease prevention and helps vastly in getting sanatorium treatment applied to the early cases of tuberculosis.

H. G. Lampson, M.D., Minneapolis.

Epidemiologist, Division of Preventable Diseases, Minnesota State Board of Health.

Experiences with Varicella and Variola

To the Editor:—I was much interested in the article on varicella and variola ("Prevention is Greater than Cure," Therapeutics, The Journal, March 13, 1915, p. 907). I wish to add my experience with these two diseases, as they are constantly present on the Mexican border, and my opportunities for study have been with 1,200 cases of the superficial and 160 cases of the deep eruption. The Vienna school is quoted as claiming that they are identical. There is too much stress laid on the location of the eruptions and the appearance of the patient in eruption.

I find that varicella frequently shows in the scalp, palms, soles, tongue and buccal cavity. I have never seen it in the pharynx.

Erysipelas sometimes is a serious complication, and there is even mild delirium in adults during a part of the days of eruption. The temperature is seldom above 103 F.

Varicella is as frequent in adults as children if never previously exposed. Variola is a pestilential disease, no milder to-day than before Jenner, absolutely controlled by recent vaccination. Error in diagnosis is the only basis on which antivaccinationists can offer argument. In Arizona only thirteen deaths have been reported in three years from smallpox, yet

50 per cent. of our appropriations in health departments has been spent for smallpox quarantine (much of which was varicella).

The smallpox pustule is reticulated, begins beneath the third layer of the skin and destroys the overlying layers, causing an admixture of blood in the crust and a black color in the scab, which on detachment leaves a permanent cicatrix.

The varicella crust molds the underlying skin, and when it drops off, leaves slight elevations which soon disappear; also occasional chickenpox pits quite distinguishable from the post-smallpox facies.

I make histologic distinction the chief diagnostic point and have never found cause to regret my position. There is no such disease as mild smallpox, in my experience, and the superficial pustular eruption never runs into smallpox.

I have seen epidemics of the two diseases occur simultaneously, but always traced the source of Jenner smallpox to a case of Jenner variola with a regular death rate and sequelae. I take the positive position as health officer that the paralysis of business in a community following the report of an epidemic of smallpox is so great that a burden of responsibility is placed on an officer to make a differential diagnosis, and not allow himself to be stampeded by the hysteria which follows a reckless announcement of a pestilential disease from an inexperienced or ultracareful practitioner.

George D. Troutman, M.D., Tucson, Ariz.
Superintendent of Health, Pima County.

Diagnosis of Chickenpox and Smallpox

To the Editor:—I was much pleased with the kind words concerning my paper on diagnosis of chickenpox and smallpox quoted in "Prevention is Greater than Cure" (Therapeutics, The Journal, March 13, 1915, p. 907). I note, however, an error in the fourth paragraph of the first column on page 908, fourteenth line, in that it states that the margins of the lesions are not crenated in either disease, thus furnishing no diagnostic point in this particular direction.

The fact is that the lesions of chickenpox *are* crenated, while those of smallpox are not, hence affording one differential point. H. W. Hill, M.D., St. Paul.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INQUIRIES ON THE HARRISON ANTINARCOTIC ACT

Some Criticisms on the Commissioner's Rulings

To the Editor:—What right has the Commissioner of Internal Revenue to differentiate between a specialist and a country doctor? If a country doctor uses one-half grain cocain in taking a foreign substance out of an eye, he must take the name and address of the patient and the date and the amount used, and a specialist doing the same work has nothing to do but keep his stock bottle.

A "dope fiend" comes to me who can use several grains a day, and it takes several grains to give any relief. What is to limit my discretionary power in the amount to be given as the law is now construed? How often is it legitimate to prescribe said drugs? If a doctor has complied with the law and writes his prescription in accordance with said law, where is the druggist to step in and refuse to fill said prescription on the ground that the patient is getting more than the law allows?

If I give a baby "Papine" and that baby has not yet been named, how am I to comply with the law?

Is the construction of "personal attendance" in accord with common sense? "If I go to the sea and wade out in the water and drown I am to blame, but if I sit down on the beach and the sea comes up to me and I am drowned I am to blame *not*."

What percentage of drug fiends use the "dope" in the eye, ear, urethra, vagina, per rectum? "Much ado about nothing."

Why were the licenses limited to $1 per year and the blanks $10 per thousand?

Why delegate to one man—Commissioner of Internal Revenue—power to read into a law so many ideas that are not contained within the law as passed by the legislative body after a study of two years? The law as passed and the law as construed are to me not the same. He has no right to construe that my business address is my name in full—it is common sense, but does his construction make it legitimate *in the eyes of the law?*

I prescribe:

℞	Tr. opii	4 drams
	Olii sinapis	5 drops
	Lin. camphorae	q. s. ad. 8 ounces

M. Sig.: External use twice a day.

Will this prescription pass muster? Or must it be written in accordance with the Harrison law? I could take some of it internally.

The law was badly needed and we all want to comply with it and will comply with it, of course; but there are some features of it that need a different construction.

Why let the "patent medicine" houses go on using the small amount of dope that creates the desire and then create so much storm after the fire has been kindled? J. W. Matlock, M.D., Frost, Texas.

Wants a Plain, Common-Sense Law

To the Editor:—Your explanation in The Journal, March 20, 1915, p. 1002, seems to make the Harrison law the work of an imbecile. From it I gather that we can give paregoric in unlimited quantities because it has less than 2 grains of opium to the ounce, and yet we cannot prescribe paregoric tablets, that represent 10 drops of paregoric to the tablet, or brown mixture tablets, that represent 1/25 grain of opium to each tablet, because an ounce of them would contain more than 2 grains of opium. For sheer imbecility, can that be beaten *anywhere in the world?* Yet this law contains a section that is even more foolish and troublesome. A physician must actually be *absent* from his office before he can come under exception, Section 2, and specialists are allowed to do many things the general practitioner cannot do.

These are only a few things in the law; but if you can find any two physicians or any two lawyers that will interpret this law alike, I think you will have to search the entire country to find them. All real physicians wish to stamp out the drug evil, and in common fairness they are entitled to a plain, common-sense law (instead of this jumble) for a guide. E. C. Helm, M.D., Beloit, Wis.

Regards the Law as Usurpation

To the Editor:—I have been surprised to observe that among so many inquiries about the new Harrison law there have been but few adverse criticisms, although it is justifiable to make adverse criticism.

1. The law is a usurpation by Congress of the police power of the states. The right of Congress to impose a revenue tax on any article is admitted, but in the case of narcotics the Congress assumes authority to regulate use, distribution and sale. If it is competent for the Congress to regulate the sale and distribution of one drug or one group of drugs, why not of another, and why not of all? If these premises be admitted, it is not apparent why the Congress may not assume the enactment of general medical practice laws, and complete the federal usurpation of state authority.

2. The necessary blanks for ordering supplies of the listed drugs are furnished by a government monopoly at an exorbitant price. Any job printer is glad to furnish similar printed stationery for $3.50 per thousand or less, while the government price is at the rate of $10 per thousand.

3. A statutory offense is arbitrarily and unjustly elevated into a felony, and technical violations of the law, consisting of acts not in their nature criminal, are treated as major crimes.

In case of criminal use of narcotic poisons, or intent to use—if such use or intent to use be proved—the laws of the several states furnish the needful machinery of justice, and it is their prerogative to deal with such offenders.

4. The most serious of the defects of the Harrison law is in the excessive penalties provided for in violation of its rules.

To denounce savage and extreme penalties against mere statutory offenses is a species of cruel tyranny worthy of the dark ages, but a disgrace to our boasted twentieth century enlightenment.

> "O, it is excellent
> To have a giant's strength, but it is tyrannous
> To use it like a giant."

W. K. McCoy, M.D., Gum Spring, Va.

Comment.—The preceding letters are criticisms either of the law or its administration rather than requests for specific information. They can therefore be answered only in general. They illustrate the difficulties attending the administration of a law, no matter how carefully considered the law itself may be. Laws can contain only general principles. They cannot provide detailed specifications suitable for every situation. The application of the general principles of the law to the specific instance must be entrusted to an executive officer. In the case of the Harrison law, this is the Commissioner of Internal Revenue who, through his subordinates, administers this law just as he does the other revenue laws. In the making of the rulings and regulations, the general intent of the law must always be kept in mind. The object of the Harrison law is to provide a system of records by which all drug preparations containing opium or cocain can be traced from the importer to the consumer. In order to make such a system complete, the physician is required to make a record of such drugs supplied to patients. To compel a record of each individual case in which a few drops of cocain solution are used, especially when this is repeated many times each day in the office practice of a specialist, is, of course, out of the question. On the other hand, to permit the unrecorded use of cocain solutions is equally impossible. The line must be drawn somewhere. For the present, the commissioner has ruled that specialists using such solutions as a routine procedure must keep a record only of the amount of stock solutions made up, while physicians using such solutions occasionally and at long intervals must keep a record. Whether this is the fairest solution possible or whether it will be the ultimate ruling remains to be seen.

There are no restrictions at present on the right of the physician to prescribe or dispense as he may see fit. The druggist is forbidden to fill a prescription if he has reason to believe that it is given for the purpose of evading the law or if it is fraudulently obtained. The ruling regarding personal attendance is another effort on the part of the executive officers to interpret the law. The presence of the exemption clause is an evidence of the power of patent medicine business rather than of the consistency of the law makers.

LANDAU COLOR TEST FOR SYPHILIS

To the Editor:—I should like to make further inquiries on the Landau tests on points which are not clear to me from your discussion of this test (Queries and Minor Notes, The Journal, Feb. 20, 1915, p. 686).

1. The specific gravity of carbon tetrachlorid is 1.63. I had the solution made up, namely, 29.3 grains iodin crystals to 4 fluidounces carbon tetrachlorid. Is that correct? If not, please state what is the correct formula.

2. The Journal says, "To 0.2 c.c. of the clear serum add 0.01 c.c. of the reagent consisting of a 1 per cent. solution of iodin in a solution of carbon tetrachlorid." Would it not be all right to use a multiple of these amounts, say ten times as much of the serum or 2 c.c., and ten times as much of the reagent or 0.1 c.c.? If not, how measure out 0.01 c.c. or 16/100 drop? I know we could dilute sixteen times and then take 1 minim, but would that be correct and would we dilute with the carbon tetrachlorid?

3. Is the test made with the paraffin oil and tincture of iodin as reliable?

John G. Scifres, M.D., Indianapolis.

Answer.—1. In making up the reagent for use in the Landau test one must, of course, take into consideration the specific gravity of the carbon tetrachlorid. The specific gravity of this menstruum is 1.63 at 0 C., and 1.593 at 20 C. The latter is more nearly the ordinary laboratory temperature so that we should regard the specific gravity of 1.593 as the better one to use in the computation. On this basis we would prepare a 1 per cent. solution of iodin in carbon tetrachlorid by dissolving 1 gram of the former in 62.77 c.c. of the latter. This would approximate the figure of 29.3 grains of iodin in 4 fluidounces of carbon tetrachlorid.

2. In measuring the reagent and the serum for use in the test, it is, of course, permissible to employ multiples of the figures mentioned. That is, instead of using 0.2 c.c. of serum and 0.01 c.c. of reagent, one may measure out ten, twenty or other times the amounts of these fluids. If one wishes to follow the original technic, 0.01 c.c. is measured by means of a 1 c.c. pipet which is graduated in 1/100 c.c. These may be obtained from any of the chemical supply houses.

3. Regarding the reliability of the original method, using paraffin oil and tincture of iodin as the reagent, as compared with the later modification it is to be said that the results are apparently just as reliable. However, more time must elapse before the result may be read, if one uses the older technic.

ARTIFICIAL RESPIRATION AND THE PULMOTOR—RESTORATION OF POLYMERIZED FORMALDEHYD

To the Editor:—1. Apart from the question of oxygen supply, has the Draegerwerk pulmotor any real advantages over efficient manual artificial respiration? In mine gas poisoning cases wherein a physician is not immediately available, do you consider the use of the pulmotor or the Schäfer method of artificial respiration in the subject's best interest?

2. Can formaldehyd which has been polymerized be restored to its former state by any simple means?

McK.

Answer.—1. In mine gas poisoning cases the Schäfer method of artificial respiration is to be preferred to the use of the pulmotor. The pulmotor has been investigated by a committee appointed by the Council on Health and Public Instruction of the American Medical Association at the request of the Bureau of Mines of the Department of the Interior, and was not approved. This question has been discussed in The Journal editorially (Resuscitation from Mine Gases, Sept. 26, 1914, p. 1117). The article by S. J. Meltzer (The Journal, May 10, 1913, p. 1407), may also be referred to.

2. When the polymerized form of formaldehyd known as paraformaldehyd is vaporized in the presence of water, it is largely converted again into gaseous formaldehyd.

USE OF DOREMUS-HINDS UREOMETER

To the Editor:—In making up the reagents for use in the Doremus-Hinds ureometer, I have been struck by the wide divergence in the strength of the sodium-hydroxid solution recommended by different authorities. Faught, in the 1912 edition of "Essentials of Laboratory Diagnosis," advises adding one part of the bromin solution to fifteen or twenty parts of 1:25 (4 per cent.) solution of sodium hydroxid. Emerson, in his 1906 edition of "Clinical Diagnosis," advises adding one part of the same bromin solution to one part of a solution of sodium hydroxid made by dissolving 100 gm. of sodium hydroxid in 250 c.c. of water (40 per cent.). Such wide variation in formulas intended for the same quantitative chemical reaction seems to call for some explanation. I have used the Emerson formula for some years with apparently accurate results, but should prefer the weaker sodium hydroxid solution for several reasons if the same results are attained. May I ask the opinion of your laboratory experts in the matter?

Lowell C. Frost, M.D., Los Angeles.

Answer.—The foregoing method for the determination of urea is not entitled to serious consideration from the scientific point of view, although it has some clinical value in the sense that daily variations may be reasonably well studied by its use. Much divergence of opinion has arisen, in times past, regarding the strength of the solution to be used as the reagent, owing to the various attempts to prevent the loss of nitrogen as well as the coestimation of other nitrogenous constituents than urea. It has been established that the higher the concentration of the hypobromite and, especially, the higher the concentration of the sodium hydroxid solution, the less the loss of nitrogen. For this reason it is advisable to use the stronger concentrations of sodium hydroxid in making up the reagent.

Further, it is unnecessary in this determination to have sodium or potassium bromid added to the bromin solution before the latter is mixed with the sodium hydroxid, because the sodium bromid is formed in the reaction between bromin and sodium hydroxid and, especially, because the sodium bromid has nothing to do with the decomposition of the hypobromite by the urea. In other words, all that is necessary in this reagent is the addition of pure bromin to the cold concentrated sodium hydroxid solution. In using this method proceed as follows: Keep on hand a 20 per cent. stock solution of sodium hydroxid. When ready to prepare the reagent, which should be done for every few determinations, add 1 c.c. of pure bromin to 40 c.c. of the 20 per cent. sodium hydroxid solution. Fill the ureometer with this mixture and proceed with the estimation in the usual way. The reason for giving these quantities is that the instrument holds approximately this amount of fluid, and thus one will have only fresh hypobromite solution for his determinations. A strong alkaline solution is necessary to absorb the carbon dioxid evolved in the reaction, the volume of which would otherwise be added to the nitrogen. One ureometer full of this solution will answer perfectly for the estimation of the urea in from six to eight specimens of urine, depending of course on the amount of urea in the specimens.

BRICKLAYER RHEUMATISM

To the Editor:—I am frequently called on to examine and treat bricklayers, and I am impressed with the number of times that I find a peculiar myalgia to which I have given the name "bricklayer rheumatism." The condition occurs usually in left hand and arm below the elbow, and causes intense rheumatic pains with very little swelling. The condition is very persistent and does not respond to salicylates. It differs from rheumatism in that it never involves other than the original site of the trouble. The reason the left arm is involved is that this is the arm which handles the brick, and consequently has the heavier work to perform. A peculiar thing about it is that when a workman handles heavy brick for a time and is then put to handling lighter brick, the trouble invariably follows. I believe that the workman who gets used to the heavier brick and then handles lighter brick unconsciously picks up the lighter brick with the same effort that he uses to pick up the heavier brick, and the consequent jerk strains the muscle.

So far I have had fairly good success with rest and hot saline applications. I should like to hear from someone else on this condition.

W. J. Thornton, M.D., Cleveland.

Answer.—We have been unable to find any literature on this subject. Perhaps some of our readers have made similar observations.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 6-7. Sec., Dr. John Wix Thomas, Phoenix.

ARKANSAS: Regular, Little Rock, May 11-12. Sec., Dr. W. S. Stewart, Citizens Bank Bldg., Pine Bluff. Homeopathic: Little Rock, May 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic: Little Rock, May 13. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

CALIFORNIA: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.

IDAHO: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.

ILLINOIS: Chicago, May 13-15. Sec., Dr. C. St. Clair Drake, Springfield, Ill.

LOUISIANA: Homeopathic, New Orleans, May 3. Pres., Dr. C. R. Mayer, 919 St. Charles St., New Orleans.

MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MONTANA: Helena, April 5. Sec., Dr. William C. Riddell, Helena.

NEVADA: Carson City, May 3. Sec., Dr. S. L. Lee, Carson City.

TENNESSEE: Knoxville, Memphis and Nashville, May 3. Sec., Dr. A. B. DeLoach, 426 Scimitar Bldg., Memphis.

UTAH: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, 81 12th St., Wheeling.

District of Columbia October Report

Dr. George C. Ober, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Oct. 13-15, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 13, of whom 8 passed and 5 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1914)	89.1
George Washington University	(1912) 84.5; (1914)	88.7
Howard University	(1914)	83.2
Hahnemann Medical Coll. and Hosp., Chicago	(1914)	79.1
Jefferson Medical College	(1914)	82.3
University of Vermont	(1914)	77
University of Virginia	(1909)	85.3
FAILED		
Howard University	(1914)	72, 72.5, 73.4
Leonard Medical College	(1913)	66.1
Meharry Medical College	(1914)	74

Kansas October Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Oct. 13, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, of whom 3 passed and 3 failed. One candidate was granted a reregistration license. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University	(1914)	82
Northwestern University	(1914)	83
University of Iowa, College of Medicine	(1884)	75
FAILED		
Eclectic Medical University, Kansas City	(1914)	*,*
Meharry Medical College	(1914)	*

* No grade given.

South Carolina November Report

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the oral and written examination held at Columbia, Nov. 10-12, 1914. The total number of subjects examined in was 13; total number of questions asked, 105; percentage required to pass, 75. The total number of candidates examined was 36, of whom 20 passed, including 1 osteopath, and 16 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1913)	85.1
Atlanta Medical College	(1914)	75.7, 79.1
University of Georgia	(1912)	75
University of Louisville	(1914)	76.1
College of Phys. and Surgs., Boston	(1914)	78.2
Leonard Medical College	(1914)	78.2
University of Pennsylvania	(1911) 89.9; (1914)	84.1
Medical College of State of S. C.	(1913) 75, 75.4; (1914)	75.6, 77.5
Meharry Medical College	(1913)	75.5, 78.6
University of West Tennessee	(1914)	75, 75, 76.5, 77.7
FAILED		
Atlanta College of Phys. and Surgs	(1912)	66.5
Atlanta Medical College	(1914)	61.5
Georgia College of Eclectic Med. and Surg	(1912)	63.4
Southern College of Med. and Surg	(1913) 66.7; (1914)	49.1, 69.2
Maryland Medical College	(1905)	*
University of the City of N. Y	(1882)	64.5
North Carolina Medical College	(1903)	67.9
Medical College of the State of S. C.	(1900) 65; (1911)	66
Meharry Medical College	(1911)*; (1914)	74.1
University of West Tennessee	(1910)*; (1913)	58.9
Gate City Medical College	(1909)	70.1

* No grade given.

Florida December Report

Dr. E. W. Warren, secretary of the Regular Board of Medical Examiners of Florida, reports the written examination held at Palatka, Dec. 2-3, 1914. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 55, of whom 36 passed and 16 failed. Three candidates were granted licenses on years of practice allowances. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1913)	86.6
Yale Medical School	(1885) 88.8; (1900)	81
Atlanta College of P. and S.	(1905) 85; (1911)	75, 87.8
Atlanta Medical College	(1914)	79.4
Atlanta School of Medicine	(1907) 77.8; (1909)	84.6
University of Georgia	(1914)	79.1
Bennett Medical College	(1914)	81
Chicago College of Medicine and Surgery	(1914)	77.7, 90.1
Rush Medical College	(1899) 92; (1914)	89.3
Indiana Medical College	(1907)	75.6
Tulane University of Louisiana	(1912)	89.7, 94.6
Medical School of Maine	(1889)	78.8
College of P. and S., Baltimore	(1911)	81.7
Johns Hopkins University	(1912)	91
University of Maryland	(1914)	87.8, 92
Harvard University	(1914)	89
Missouri Medical College	(1877)	83.1
Leonard Medical School	(1911)	75
Medical College of Ohio	(1904)	75
Woman's Medical College of Pa	(1899)	91
Medical College of the State of S. C.	(1912)	91
Meharry Medical College	(1912) 81.8; (1913)	76
Memphis Hospital Medical College	(1903)	84
University of the South	(1906)	75
Medical College of Virginia	(1914)	91
University College of Med., Richmond	(1912)	84
Marquette University	(1913)	85.1
FAILED		
Atlanta Medical College	(1890)	65
Atlanta School of Medicine	(1909)	58.8
Southern College of Med. and Surg	(1913)	50.1
Central College of Phys. and Surgs	(1898)	63.6
Kentucky School of Medicine	(1881) 48.7; (1896)	57.1
College of Phys. and Surgs., Boston	(1912) 61.6; (1913)	64.3
College of Physicians and Surgs. in the City of N. Y.	(1881)	49.3*
Meharry Medical College	(1914)	58
Memphis Hospital Medical College	(1913)	67
Lincoln Memorial University	(1913)	67
University of Tennessee	(1912) 55.3; (1914)	57
Vanderbilt University	(1894)	45.6
University of Paris	(1900)	†

* Official information from this college states that this candidate is not a graduate.

† No grade given.

Indiana January Report

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination, reports the written examination held at Indianapolis, Jan. 12-14, 1915. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 14, including 3 osteopaths, all of whom passed. Two candidates were given reregistration licenses. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College		Year Grad.	Per Cent.
PASSED			
Chicago College of Med. and Surg.		(1913)	78.1
Rush Medical College		(1914)	92.8
Indiana University		(1914)	81.5
Medical College of Indiana		(1896)	90.2.
Kentucky School of Medicine		(1891)	75
University of Louisville	(1913) 82.2, 86.4;	(1914)	78.2
Johns Hopkins University		(1912)	90.3
Missouri Medical College		(1881)	75
University of Maryland		(1910)	83.9

College		Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY			
Chicago College of Med. and Surg.	(1910) Kentucky;	(1913)	Illinois
Coll. of Phys. and Surgs., Chicago	(1893) Maryland;	(1906)	Illinois
Illinois Medical College		(1906)	Illinois
Northwestern University		(1905)	Illinois
Rush Medical College		(1912)	Illinois
Louisville Medical College		(1896)	Kentucky
University of Maryland		(1889)	Maryland
University of Michigan, Dept. of Med. and Surg.		(1912)	Illinois
Washington University		(1907)	Illinois
Ohio-Miami Medical College		(1912)	Ohio
Jefferson Medical College		(1908)	Illinois
Meharry Medical College		(1910)	Tennessee
University of Nashville		(1904)	Tennessee

Minnesota January Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Jan. 5-7, 1915. The total number of subjects examined in was 18; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 5, of whom 2 passed and 3 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College		Year Grad.	Per Cent.
PASSED			
Rush Medical College		(1911)	88
Hahnemann Med. Coll. and Hosp., Phila.		(1911)	88
FAILED			
Indiana Medical College		(1906)	*
Hamline University	(1904) 67.9;	(1907)	*

College		Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY			
George Washington University		(1908)	Iowa
College of P. and S., Chicago	(1902) Iowa;	(1909)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago		(1913)	Illinois
Northwestern Univ.	(1903) South Dakota; (1908)	(1910)	Illinois
Rush Medical College	(1906)	(1913)	Illinois
Drake University		(1909)	Iowa
University of Louisville		(1910)	Wyoming
Woman's Medical College of Baltimore		(1892)	S. Dakota
St. Louis University		(1912)	Missouri
University of Virginia		(1909)	Virginia
Marquette University		(1913)	Wisconsin

* No grade given.

Utah January Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Jan. 4-5, 1915. The total number of subjects examined in was 19; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Denver College of Medicine	(1884)	75
Gross Medical College	(1895)	75
Rush Medical College	(1914)	83.6
John A. Creighton Medical College	(1914)	84.8
Ohio Medical University	(1898)	75
Medico-Chirurgical College of Philadelphia	(1913)	88.6
Meharry Medical College	(1914)	75
Royal University of Naples	(1897)	75

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
College of Phys. and Surgs., Chicago	(1904)	Illinois
Ensworth Medical College	(1905)	Nevada

Book Notices

Physiological Principles in Treatment. By W. Langdon Brown, M.A., M.D., F.R.C.P., Assistant Physician to St. Bartholomew's Hospital. Third Edition. Cloth. Price, $2.25 net. Pp. 408. New York: William Wood & Co., 1914.

The recent advances in physiology have affected medical treatment in two ways: In the first place, they have been the occasion of introducing a number of new remedies, chiefly enzymes and the organ extracts which are supposed to owe their efficiency to the action of hormones. Second, physiology has given us a clearer idea of many functions so that we have a more rational conception of diseases and consequently are able to introduce a treatment founded on correct principles. Brown's work is an attempt to illustrate the value of these principles in the treatment of a number of diseases.

In the first chapter the hormones, including iodothyrin, adrenine and pituitary extract are considered together with the action of ovary, testes and thymus, kidney and muscle. The value of these remedies in various directions is stated, with due conservatism, and a very commendable feature of the book is a careful summary following each principal subject. The objectionable features of epinephrin therapy are clearly stated. His estimate of the action of pituitary extract (the author uses the proprietary term, pituitrin) appears to underrate rather than overestimate the value of the drug. Speaking of its action on postpartum deficiency of uterine tone, he says, "It is doubtful whether it is superior to ergot in this capacity, however, while before delivery its use is subject to the same limitations as that drug."

Chapter 2 deals with the rational treatment of gastric disorders, and it is an excellent example of the application of modern physiologic facts to the treatment of diseases of the stomach. However, while the author can find no rational explanation for the use of alkalies in the treatment of dyspepsia, he still continues the principle of giving alkalies with bitters such as nux vomica before meals and hydrochloric acid after meals. He states that the use of these remedies is described as giving more satisfactory results than either separately. Probably this is an example of the influence of current usage over the most scientific mind. He is quite pessimistic with reference to the value of rectal feeding. Chapter 3 deals with the mechanical factors in digestion and indigestion. Here we have naturally a somewhat full discussion of intestinal stasis and also visceroptosis. In Chapter 4, the work of the pancreas is described and the theory of the influence of secretin is explained with a statement that no action can be expected from it when given by the mouth. One of the most interesting chapters of the book is that on uric acid and the purin bodies in which the various fallacies with reference to the action of uric acid are clearly set forth. The chapter, though comparatively short, will well repay a careful reading.

In treating of phosphaturia, the author makes it quite evident that this condition is a symptom and not a disease, being largely dependent on the alkaline reaction of the urine. The author has the courage to attack the popular practice of estimating urea as a guide to the renal capacity. He notes the fact that physicians finding a low urea output (due to deficient ingestion of protein) conclude that the renal capacity is deficient and that nitrogenous food must be still further restricted and consequently lessen the nitrogen intake with the appalling result of a greater deficiency of urea. The following paragraph is worth quoting:

"What the physician expects to learn from the urea estimation without reference to the amount of nitrogen in the food is hard to say. If he knew the total nitrogen excreted, as estimated by Kjeldahl's method, he could see whether the body was converting a due proportion of the nitrogen into urea; this would give him some information as to the capacity of the individual, but urea estimations by themselves tell him practically nothing. This fallacy vitiates many of the conclusions arrived at by so careful an observer as the late Professor Foxwell (*Lancet*, London, 1908, ii, 1425). He hardly mentions the diet factor at all. In one case he certainly says that he found a patient with chronic nephritis passing as much as 585 grains (39 grams) of urea a day. On inquiry, he learned that the patient, feeling run down, was taking six meals a day, three of them being good meat meals. This shows that a chronic nephritic can excrete even more than a healthy man does on his ordinary diet, though it presumably taxes his kidneys more. We can agree with Professor Foxwell that a daily output of 250 grains of urea is the lowest on which a man can permanently exist without losing ground; for this would represent a daily intake of about 50 grams of protein, which is little enough to satisfy even the most extreme 'nitrogen economist.' In short, the amount of urea excreted by the kidney depends on the amount of protein eaten, and, within wide limits, on little else."

Chapter 9 gives a very good explanation of the exposition of the relations of acidosis. In other chapters the subjects of intestinal intoxications, irregular action of the heart, vasomotor disease, cyanosis and lastly vitamins are treated in the same excellent way. We are glad to say that the book is not marred to any extent by the introduction of proprietary remedies. Cyllin, izal and soluro are the chief ones mentioned.

Kurzes Lehrbuch der Kinderkrankheiten. Als Zweite Auflage von Nil Filatow's Gleichnamigem Werke Ganzlich Neu Bearbeitet von Dr. Heinrich Lehndorff, gew. Assistent des Karolinen-Kinderspitales. Paper. Price, 5.60 marks. Pp. 228. Vienna: Josef Safar, 1914.

The author announces that he does not pretend to give more than the essentials of each subject and the major details of symptomatology and therapeutics of childhood. The chapter on infant feeding follows closely the work of Czerny and Finkelstein. The chapters on infective diseases are excellent, showing the work of Filatow, the author of the first edition. For the purpose for which this book is written it can be highly recommended.

Die Neueren Arzneimittel und die Pharmakologischen Grundlagen Ihrer Anwendung in der Aerztlichen Praxis. Von Dr. A. Skutetzky, Privatdozent für Innere Medizin, und Dr. E. Starkenstein, Privatdozent für Pharmakologie und Pharmakognosie. Second edition. *Cloth. Price 7 marks. Pp. 475. Berlin: Julius Springer, 1914.*

While the title of this book indicates that it deals with new remedies, it discusses many older preparations also. When old as well as new remedies are discussed, the reasons for the introduction of a new or improved preparation are given. The remedies are grouped according to their therapeutic uses, under the following heads: heart and circulation; blood and blood-producing organs; hemostasis; digestive disorders; genito-urinary diseases; respiratory diseases; skin diseases; eye diseases; metabolism disorders; artificial foods; organotherapy; anesthesia; analgesia; antisepsis; infectious diseases, and poisonings. Under each heading are found discussions regarding the pharmacologic action (supported by clinical evidence) and uses of several preparations. Modern therapeutics are based largely on pharmacology, and the evidence for a large part of the statements is pharmacologic. Besides the actions and uses, the composition, the dosage and the form in which the drug appears on the market, the price and the manufacturer are given as far as possible.

Squire's Pocket Companion to the British Pharmacopeia. Comparing the Strength of Its Various Preparations with Those of the United States, French and German Pharmacopeias, to Which Are Added Not Official Preparations and Practical Hints on Prescribing and Dispensing. By Peter Wyatt Squire. Second Edition. Leather. Price, 10 shillings 6 pence net. Pp. 1040. London: J. & A. Churchill, 1915.

This book is the British physician's pocket manual of the British Pharmacopeia. The larger part of the book is devoted to a consideration of drugs, including all the pharmacopeial preparations, with the medicinal properties and doses, each of which is compared with those of the Continental pharmacopeias and of the United States Pharmacopeia, along with many non-official preparations. The book contains a large amount of general information such as tables for the conversion of different degrees of temperature, for the conversion of weights and measures, suggestions for prescribing, etc. While the book is specially adapted to the needs of those who use the British Pharmacopeia, American physicians will find in it much that is valuable.

Miscellany

The Correct Attitude Toward Epidemic Diseases

The Marquette (Mich.) *Journal*, in commending the Houghton (Mich.) *Gazette* for its vigorous campaign to prevent the spread of small-pox in the northern peninsula by the thorough vaccination of the people, says that fighting the enemy before he reaches the city gates is an excellent principle on which to act. Michigan, which the *Journal* calls a "small-pox state," has had some experience with small-pox epidemics in unvaccinated communities in which attempts were made to suppress the news on the (usual) ground that it would "hurt business." The *Journal* points out the foolishness of this plan of procedure and gives facts emphasizing again the effectiveness of vaccination. The *Journal* says:

"Undoubtedly the *Gazette* has had to go through the usual experience of newspapers when they start in to use the powerful weapon of publicity. Small-pox in a community is dreaded by the merchant and business man. To give it publicity means that trade is kept away. The first impulse of a community usually is to cry 'keep it out of the papers.' *But to suppress the facts; to let people dwell in ignorance,* has always resulted in disaster and this has been strikingly demonstrated in Michigan many times, and epidemics have gained full sway because of the carelessness, born of ignorance, while full sized doses of publicity would have put every person on guard.

"Saginaw was one of the latest towns to have this experience. The fact that a virulent form of small-pox had broken out was suppressed and the disease spread rapidly. When about twenty-five cases appeared, and deaths resulted, the newspapers broke loose from the influence that had kept them quiet and they raised a row that galvanized city and state authorities into a campaign that resulted in wiping out the disease. But not before two-score deaths had occurred. And most of the exposures had been made *during the period when the news was suppressed.* The mortality in that epidemic was about 50 per cent., but *not one vaccinated person died.* Bay City had a similar epidemic the year before, with a mortality of about 45 per cent., but not a death of a vaccinated person. In neither epidemic, which were the severest in many years, *was a vaccinated person even seriously ill.*

"Copper country people may not appreciate it, but those who have had experience with small-pox in Michigan—which is a 'small-pox state'—know that the *Gazette's* course, seconded by other newspapers of the community, is the surest and quickest way of stamping out the disease."

Brisket Disease Among Cattle

Glover and Newsom in Bulletin 204 of the Colorado Agricultural College describe brisket disease, an unusual affection of cattle found so far only in Colorado. After an investigation of the trouble they summarize their findings as follows: A disease occurring in cattle in the high altitudes of Colorado, the principal symptoms of which are swelling of the brisket and of the loose tissues under the jaw, usually diarrhea and a moist cough with gradual emaciation and death. It is chronic in character but is fatal in practically all cases. On necropsy the most marked features are generally dropsy, enlarged and hard liver and dilated heart. In six cases shipped to a lower altitude (about 5,000 feet) all recovered without other treatment, although it seems reasonable to believe that they would have died had they not been shipped. It appears to be caused by an exhaustion of the heart muscle, associated with a varying degree of dilatation and a hypertrophy, and this being brought about by exertion before acclimatization at high altitudes, or in the case of calves, inherited cardiac weakness. Medical treatment has so far proved of little avail, but where possible, shipping the affected animals to a lower altitude is recommended. Preventive measures include the use of bulls that have been raised at altitudes of 8,000 feet or more, with a view to building up a hardier strain of cattle, also the curtailment of indiscriminate shipping of low altitude cattle to high altitudes.

Foot and Mouth Disease

The outbreak of foot and mouth disease among cattle in the United States is of interest to the profession on account of the possibility of its transmission to man. One or two cases have been reported of human infection, though they have not been well authenticated. The chief interest of the disease to the medical profession, however, is the manner in which it affects the milk industry and perhaps results in the infection of the milk itself. The interesting theory has been advanced by veterinarians and others having to do with the cattle and dairy industries that skimmed milk from creameries sent back to the farm for feeding to stock has been the means of transmitting and perpetuating the disease. Sterilization of all by-products of creameries is therefore urged. The *Cornell Veterinarian* for February contains a history of the different outbreaks of the disease in this country, of which the present one, covering eighteen or more states, is the fifth. It also contains other papers on the nature of the disease, its etiology and morbid anatomy, symptomatology, diagnosis and differential diagnosis, its economic significance and methods for control, and what animal owners should do to prevent it, together with a number of illustrations of microscopic and gross specimens of the disease, methods of disposing of the animals, etc. Each of these articles is written by an expert veterinarian or person having special knowledge of the disease, and the pamphlet should be a convenient means of disseminating accurate information concerning this insidious and rapidly spreading infection.

Drugs and Chemicals in Cigarettes

The statement has been frequently made that certain brands of cigarettes and tobaccos contain dangerous or habit-forming drugs. Manufacturers have been accused of buying extensively of tincture of opium for cigarettes and arsenic has been said to be found in the papers. In order to prove or disprove this the Bureau of Drugs of the Ohio Agricultural Commission had an analysis made of the various brands of cigarettes, the tobacco content and the papers being analyzed separately. The work was done by the chemist of the department, Azor Thurston, who in *Bulletin 2* reports his findings. Nicotin was determined by two methods, the silicotungstate, and by Lloyd's reagent. The ash was examined for the alkalinity of water soluble and insoluble ash and likewise for hydrochlorid acid insoluble ash. Opium and other drugs were determined by usual reagents according to Fuller's scheme of analysis. The nicotin content was found to vary between 2.79 and .43 for most of the different brands, some of the cheaper ones having the highest nicotin content, one cheap one showing 3.34 per cent. No opium or other habit-forming drug was found. The papers were all found to be chemically filled, usually with calcium and magnesium oxids or oxids of alumina and silica. A few brands contained small quantities of nitrates, although it is said manufacturers frown on papers containing nitrates. Alfalfa, which it has been reported is sometimes used in fillers for cigarettes, was not found in any of the twenty-eight brands examined.

"Furnace Workers' Cataract"

At the Ophthalmological Section of the Royal Society of Medicine, London, Mr. A. B. Cridland showed a case of "glass workers' cataract" in an iron smelter ("puddler"), an occupation in which the condition has not received much attention. Considering the number of hours of exposure to the glare of molten metal, especially as the men rarely wore protective goggles, he was greatly surprised that there were not more cases. Though cataract is recognized by the government among the occupational diseases for which special compensation must be paid by employers in the case of glass workers, it is not so recognized in the case of iron workers. He suggested as a more inclusive term for such cases "ray cataract." In the discussion which followed, the president, Mr. Priestly Smith, suggested the name "furnace workers' cataract," as furnace work was common to all the occupations mentioned.

Medicolegal

Action for Malpractice Not Maintainable Against Physician for Miscarriage by Woman Taking Abortifacient Independently

(Coombs et ux. vs. James (Wash.), 144 Pac. R. 536)

The Supreme Court of Washington reverses a judgment rendered for the plaintiffs, husband and wife, for a miscarriage suffered by the wife, which she attributed to electrical treatment administered to her by the defendant. The reversal is with instructions to dismiss the case. The court says that at the time of her first visit to the defendant Mrs. Coombs was advanced in pregnancy about two months. It was admitted that on this visit the defendant advised that she was not pregnant, but suffering from delayed menstruation, and that a mild application of electricity would restore normal conditions. And Mrs. Coombs admitted that, while this treatment was being administered, she went to a drug store, on April 17, and, first ascertaining that it could be obtained without a physician's prescription, purchased an ounce bottle of extract of cotton root, which she took in certain doses until she had taken it all. The last electrical treatment was administered by the defendant April 23, and on May 7 the miscarriage occurred. While there may have been some dispute as to whether or not the treatment administered by the defendant was sufficient to produce a miscarriage, there was none that the cotton root taken as Mrs. Coombs admitted she took it would produce such a result. As between these two causes, for one of which only the defendant would be responsible, which was the proximate cause of the injury suffered by Mrs. Coombs? To answer would be to guess, since it was impossible for the evidence to give any indication. The evidence as to the first cause was conjectural, and the most that could be said was that it was equally consistent with proper and improper treatment. The evidence as to the second cause was certain and consistent only with one theory, and that was that it would produce an abortion and was taken with that intent. In the face of these facts, the court does not feel that a jury should be permitted to speculate between these two causes. No verdict should be permitted to stand in cases of this character when the jury disregards that which is certain and undisputed in favor of that which is conjectural. Nor is it permitted to speculate as between two acts the effect of which cannot be determined by any human agency, as to which is the proximate cause of the given happening. The law will not permit a woman to take an abortive medicine, and then, when the natural result follows, to maintain an action on the speculation that her injury was not produced by herself, but was the result of some treatment administered by her physician. The case is not like those in which, as between disputed facts, a jury may determine the cause of an injury. Judgment should have been entered in the defendant's favor.

Action in Regard to Filing Certificate Must Be Included

(State vs. Stanley (Wash.), 144 Pac. R. 689)

The Supreme Court of Washington affirms a judgment dismissing the action against the defendant on the ground that the facts stated in the information did not constitute a crime. The Washington statute provides that "Every person filing for record, or attempting to file for record, the certificate issued to another, falsely claiming himself to be the person named in such certificate, or falsely claiming himself to be the person entitled to the same, shall be guilty of a felony, and, on conviction thereof, shall be subject to such penalties as are provided by the laws of this state for the crime of forgery." The information in this case did not charge the defendant with filing for record, or attempting to file for record, a certificate issued to another, falsely claiming himself to be the person named therein, or falsely claiming to be the person entitled to the same, but charged him merely with falsely claiming himself to be the person named in such a certificate, and falsely claiming to be the person entitled to the same, omitting the element of filing for record, or attempting to file for record. It was on this ground that the trial judge held the information insufficient. He held that the act of filing for record, or attempting to file for record, the certificate, was a necessary ingredient of the offense defined by this section of the statute, and that the information in order to state a crime thereunder must so charge. The supreme court is constrained to adopt the construction of the trial judge. It thinks the act of filing for record, or attempting to file for record, a necessary ingredient of the offense. In other words, it is an offense, within the meaning of the statute, for any person to file for record, or attempt to file for record, the certificate issued to another, falsely claiming himself to be the person named in the certificate, or to file for record, or attempt to file for record, the certificate issued to another, falsely claiming himself to be the person entitled to the same; but to make the false claims, without filing or attempting to file the certificate for record, does not constitute the felony described in this section of the statute. This construction is borne out by that other section which provides that "It shall be the duty of every holder of a license from the state board of medical examiners to exhibit his or her license to any resident of this state who may request to see the same, and any person refusing or failing so to do, or who shall exhibit any such license as his or her own, in response to such request, when such license has not been issued to him or her, shall be guilty of a misdemeanor." Clearly to exhibit a certificate to another as one's own is falsely claiming to be the person named therein, and falsely claiming to be the person entitled to the same, and it is not to be supposed that the legislature would in one section of an act declare a specific false claim to be a misdemeanor, and in another section of the same act declare a similar false claim to be a felony.

Conviction Affirmed Where Defense was Epileptic Insanity

(People vs. Harris (Cal.), 145 Pac. R. 520)

The Supreme Court of California affirms a conviction of murder in the first degree in this case, in which the defense was insanity, or rather a form of epileptic insanity. It was not claimed that the defendant was insane at the time of the trial, but only that he was insane when he committed the homicide. He testified that for some three years previous to the homicide he had at occasional times suffered from fits resulting in a loss of consciousness; that at those times, covering a period of from days to several weeks, he would have spells of sickness accompanied by lapses of memory; that sometimes also during these spells he would hear voices of unknown and unseen persons telling him that he was threatened with great injury or death by some person, and urging him to seek and kill such person to protect himself, and the voices kept constantly urging him to do the things they said; that he was made angry and fearful at these times by these suggestions and promptings; that a feeling or impulse to do as the voices urged would come over him, which he would try to resist, but which he could not succeed in doing; that for a week previous to the homicide he was suffering under one of these spells, etc. The claim on his behalf was that he was subject to intermittent attacks of a particular phase of epileptic insanity defined by the medical experts called in his behalf as psychic epileptic equivalent, a condition where instead of the usual convulsive phenomena ordinarily known as epileptic fits there are substituted from time to time certain disturbances of mentality during which the consciousness of the individual afflicted is so altered that he is deprived of the full possession of his usual faculties, etc. These medical experts gave it as their opinion from the evidence in the case and personal examination of the defendant that he was suffering from a spell of this phase of insanity when he committed the homicide, and was insane when he did so, so that by reason thereof he was incapable of having a malicious intent to kill and incapable of deliberating on the act of killing which he committed. The court permitted these experts to testify that from the nature of his insanity when the defendant committed the homicide he was incapable of resisting an impulse to do it, but the court at the same time stated that nevertheless it would instruct the jury that in California the doctrine of irresistible impulse as an excuse for crime did not exist. Other medical experts expressed the opinion, based also on the evidence in the case and personal examination of the defendant, that he was not suffering from epileptic insanity when he committed the homicide; that he was entirely sane at the time, having mental capacity to know and understand the nature and character of the act he was committing. The result was a conviction, which, as above stated, is affirmed.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
American Association of Immunologists, Washington, May 10.
American Dermatological Association, New York, May 13-15.
American Gastro-Enterological Association, Baltimore, May 10-11.
Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
American Neurological Association, New York City, May 6-8.
American Orthopedic Association, Detroit, May 6-8.
American Pediatric Society, Lakewood, N. J., May, 25-27.
American Psychopathological Association, New York, May 5.
American Urological Association, Baltimore, April 13-14.
Arkansas Medical Society, Little Rock, May 3-6.
Association of American Physicians, Washington, May 11-12.
Conf. of State and Prov. Boards of North America, Washington, May 14.
Connecticut State Medical Society, Hartford, May 19-20.
Florida Medical Association, De Land, May 12-14.
Georgia Medical Association, Macon, April 21-23.
Illinois State Medical Society, Springfield, May 19-20.
Iowa State Medical Society, Waterloo, May 12-14.
Kansas Medical Society, Kansas City, May 5-6.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Mississippi State Med. Association, Hattiesburg, May 11.
Missouri State Medical Association, St. Joseph, May 10-12.
Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
Nebraska State Medical Association, Hastings, May 18-20.
New Hampshire Medical Society, Concord, May 19.
New York State Medical Society, Buffalo, April 27-29.
North Dakota State Medical Association, Bismarck, May 12-13.
Ohio State Medical Association, Cincinnati, May 4-6.
Oklahoma State Medical Association, Bartlesville, May 11-13.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.
Texas State Medical Association, Ft. Worth, May 4-6.
West Virginia State Medical Association, Huntington, May 12-14.

CHICAGO MEDICAL SOCIETY

Meeting held March 24, 1915

The President, DR. JAMES A. CLARK, in the Chair

Eutocia by Means of Nitrous Oxid Gas Analgesia; A Safe Substitute for the Freiburg Method

DR. FRANK W. LYNCH: Sir Humphrey Davy in 1800 suggested the use of nitrous oxid gas as an anesthetic. Faraday in 1818 advocated the use of ether, yet to Simpson belongs the honor of introducing ether, chloroform and chloral in obstetric practice. The general practitioner is anxious to adopt a safe and efficient method. So-called "twilight sleep" is now under proper investigation. The whole truth is not known. There are objections to the method. It is not suitable for general practice, nor is it suitable for all cases that come to labor. It is not successful in all cases in which it is judged applicable. It carries potential danger to the child.

Since July, 1913, I have used nitrous oxid gas for long continued analgesia in my obstetric work. Analgesia has been maintained from the latter part of the first stage, or from the time when the pains became severe, and all the women said that pain was negligible and practically nil. Analgesia was continued in 34 cases more than one hour; in 32 cases more than two hours; in 12 cases more than three hours; in 4 cases more than four hours, and in 1 case more than six hours. Three cases were terminated with forceps with the gas carried to the surgical degree. There was no case of inertia, postpartum hemorrhage or shock. The method is suitable for patients at their homes or in the hospital.

The best results are obtained with a nosepiece such as is used by dentists, but the ordinary mouthpiece will answer. I have hitherto started the treatment when the pains became severe enough to cause complaint. Pure nitrous oxid gas is turned full on at the beginning of the pain, and the patient is told to breathe deeply but rapidly through the nose. Five or six respirations suffice to produce analgesia, even in the presence of uterine contraction. The nosepiece is now placed over the mouth; the patient is told to breathe through the mouth, and analgesia is maintained by admixing oxygen with the gas until the end of the pain. This process is repeated with each pain. The percentage of oxygen varies from nothing to 10 per cent. It is more difficult to maintain analgesia with the mouthpiece without wasting much gas, since the depth of anesthesia is now more difficult to control. Oxygen must be used more freely. When the head distends the perineum, the anesthesia is carried to the surgical degree, and the color of the patient is controlled with oxygen. With good apparatus the cost is not over one cent per minute. With a poor apparatus it may cost as much as three dollars per hour.

Gas is the ideal drug for conducting labors. It is the most volatile of anesthetics, in that it acts more quickly, and its effects pass away very rapidly. It is practically free from danger even when continued for analgesia extending over many hours.

DISCUSSION

Dr. J. Clarence Webster: Ten or eleven years ago I felt that the routine use of ether in surgery and obstetrics was wrong, and began a long series of cases working from pure nitrous oxid up to mixtures of nitrous oxid and oxygen. While Paul Baer of France referred to the additional value of nitrous oxid when it is mixed with oxygen, the late Dr. Edmund Andrews of Chicago directed attention to the value of nitrous oxid and oxygen in the eighties independently of Baer. I first employed this anesthetic in eclamptic and nephritic cases in which operative measures were indicated; then later extended its use to cesarean sections in cases in which, on account of the condition of the kidneys of these patients, I was afraid to give a general anesthetic. Dr. Lynch has endeavored to standardize the administration, giving the smallest possible amount at which obstetricians aim in the administration of any anesthetic. The only point that requires now to be developed is economy of administration.

Another great advantage is that its administration can be carried on by the practitioner in the home of the patient. While a large number of patients are attended in hospitals, by far the greater majority are delivered in their own homes. Physicians should not go crazy, lose their heads and get the idea that labor is an entirely pathologic process, like a surgical operation, requiring the administration of some anesthetic or sedative drug from beginning to end. The advantages of nitrous oxid gas analgesia in obstetrics are that the apparatus is simple, can be easily transported, and may be used by any practitioner. Deep anesthesia is not necessary. There are no ill effects to mother or child. The strength of the uterine contractions is not diminished, no matter how long the administration of the nitrous oxid gas is continued. The administration is under control all the time and can be stopped at any moment. This is a very decided advantage which is not possessed by any method which necessitates placing a patient under the influence of drugs administered internally.

Dr. N. Sproat Heaney: Nothing can be added to what Dr. Lynch has said regarding the safety of the method for both mother and child. There is not the least difficulty with the child. It is not necessary to apply artificial respiration or to explain to the parents afterward that any trouble manifested on the part of the child in nursing is due to some difficulty at birth. The method is so simple that the practitioner can trust the use of the apparatus to an attendant while he gives his attention to the case. I have found that patients are always willing to provide for any expense if they are given the assurance of freedom from pain by this method. It is not very expensive. I myself have no special apparatus for the mixture of gas and oxygen; consequently I simply use nitrous oxid gas, and the results I have obtained are just as good as those I have secured when I gave both gas and oxygen to patients.

Dr. Isabella C. Herb: Scopolamin is not a respiratory stimulant in any dose, and when given in large doses it is actively depressing. Morphin, when it is given in any sized dose to produce systemic effects, is a respiratory depressant. Scopolamin raises blood pressure, but does not affect the pulse rate, while morphin raises blood pressure and also increases the pulse rate. Morphin depresses the brain and produces sleep. Scopolamin also depresses the brain and usually produces sleep, but may produce likewise delirium and hallucinations and a great amount of restlessness. Both morphin and scopolamin depress kidney function; consequently their use would be especially hazardous in a woman whose kidneys are undergoing a pathologic process which will interfere or decrease their functionating capacity. Under such circumstance uremic coma may be precipitated if the kidney function is depressed for several hours.

As labor pains are not continuous, any agent which will give relief during uterine contraction, and whose action will stop after the cessation of pain, is a most desirable agent. Such an agent we have in nitrous oxid gas, which is quick and evanescent in its action, and so far as the tissues are concerned, is an inert substance. There are no poisons to be eliminated. Too much emphasis is placed on the cost of nitrous oxid gas. Safety for the mother and child should be the all-important question and predominate over all others. It requires some intelligence to give a hypodermic injection, but it requires no special training, no special knowledge, no special expertness to administer gas up to the point of analgesia.

Dr. Carl H. Davis: My experience with nitrous oxid gas in labor dates back to 1909, when it was my good fortune to give the first nitrous oxid gas analgesia for a cesarean section done at the Presbyterian Hospital. During that period I gave nitrous oxid gas for versions, vaginal sections and for normal deliveries. The longest time which any one patient received nitrous oxid was not over two hours, and that was prior to a forceps delivery in a primipara. The method at that time was to give a few whiffs of gas during the height of the pain merely to lessen suffering, and then as delivery was approached, with the head bulging the perineum, the woman was more completely anesthetized. Since the introduction of the nasal inhaler and of the newest types of gas machines, the cost of administering nitrous oxid has been materially decreased. Instead of costing five dollars an hour as it did a few years ago, it can now be administered for a small part of that amount. One of the chief difficulties of the use of nitrous oxid by the general practitioner is that of having his hands scrubbed and having to regulate the gas machine. It occurs to me that a machine can be devised which will permit the practitioner to regulate the gas and at the same time to care for the patient. Such a machine has been constructed and will be exhibited by Dr. Lynch. From my experience with nitrous oxid gas, I feel that it can be used by the general practitioner as well as by the specialist, and I believe it will have a wide range of usefulness in the future.

Dr. Henry F. Lewis: If a patient can be made comfortable and free from pain without too great a sacrifice of safety, it should be done. Inasmuch as Dr. Lynch has referred to the method of nitrous oxid gas being used principally in the second stage and toward the end of labor, I should like to ask him a question: whether he would advise the use of nitrous oxid gas in the beginning of a labor, with a long first stage?

Dr. Bertha Van Hoosen: I wish to report briefly the last fifty cases we have had at the Mary Thompson Hospital. Of these there were twenty-four primiparas, and twenty-six multiparas. There was one high forceps case and the baby was asphyxiated. It was the only baby that had to be resuscitated that did not breathe as soon as it was born. In the primiparas the average labor was two and one-half hours; in the multiparas the average labor was six hours. No children were born dead with the exception of a five months' fetus which probably died before labor began. No heart beat was heard, and the child was macerated beyond recognition. All of the women were able to nurse their children. All of these cases were given a fixed dose, namely, 1/100 grain of scopolamin, and ⅛ grain of morphin as soon as it was known they were in labor. These doses were repeated at the end of one-half or one hour, according to the severity of the pain, and at the end of the next half hour or hour. They were kept under the anesthetic by repeating the 1/100 grain of scopolamin every two hours until labor was completed. Thirty of these patients took from 2 to 5 doses; four of them had as high as 9, 12 and 15 doses; two of them had 15 doses. We have not had any blue babies. We use a fixed dose, and not the Freiburg dosage. We feel the Freiburg dosage is not satisfactory and we would not get perfect results by it. There was perfect analgesia in every one of the fifty cases.

Dr. Joseph L. Baer: At a previous meeting of this society it was my privilege to report a series of thirty-nine obstetric cases which were conducted at the Michael Reese Hospital since the first of January. This series has since grown to seventy under scopolamin-morphin anesthesia and has been terminated. The method was conducted under the strictest precautions for observation and control that could be devised by Drs. Frankenthal and Cary. Two nurses were employed for the purpose who alternated, spending their whole time in the delivery room. Two interns were assigned to the obstetric service, devoting their whole time to the study of these cases, and I spent most of my time there with them. I think the method may be summed up in a phrase coined by Dr. Cary as an "obstetric jag." Every patient on whom we started this method was a matter for concern until she had been delivered. We have had blue babies. We have had almost every complication and disaster spoken of from this particular method of anesthesia. Speaking for myself—and without consultation I think I can speak for Dr. Frankenthal and Dr. Cary also—anything that will take the place of scopolamin and morphin, if they have taken a foothold, would be an improvement.

I held the position of anesthetist at the Michael Reese Hospital for a number of years before I became associated with the obstetric staff, and I gave nitrous oxid and oxygen anesthesias in most of the private surgical cases in which operation was performed by members of the staff, and from my experience nitrous oxid and oxygen are safe even in the hands of those who have little training. This of itself is worth considering.

Dr. Charles B. Reed: I hope that we shall have a definite and satisfactory anesthesia for all obstetric cases. My own experience has been confined recently to the study of the scopolamin-morphin method at Wesley Memorial Hospital. We have had approximately seventy-odd cases there. We have had the usual run of delirium, etc., which Dr. Baer spoke of, but this occurred in Jewish women, and I believe that the highly sensitive nervous system of that race is not adapted to the use of scopolamin-morphin. We have had no blue babies. We have lost no mothers and no babies. We have found the method fairly satisfactory. We use it in the second stage. We have had no labors practically over eight hours, and we are apparently satisfied to continue the method.

Dr. Junius C. Hoag: I think the expression used by Dr. Cary of "obstetric jag" is very apt. It may be called that or an "obstetric debauch." I started last summer for Freiburg and was kept out of Germany by the war. Since I have become familiar with the scopolamin-morphin method, I do not regret being unable to reach Freiburg. After some of the hysteric manifestations we have had with regard to the scopolamin-morphin method, it is refreshing and encouraging and hopeful to listen to such reports as Dr. Lynch has brought forward. I have used the method in fairly normal but protracted cases of labor, and also in cases of cesarean section. I have practiced medicine long enough, so that I have gone through a good many furores or manifestations of hysteria over different methods, and I prognosticate that the scopolamin-morphin method will not be of long duration.

Dr. William Rittenhouse: For the last eight years I have been using morphin and scopolamin more or less whenever they seem to be indicated by an undue amount of suffering on part of my patient. I give it in the first stage more frequently because my experience has been that patients suffer most acutely in the first stage. The suffering of the second stage is more commonly controlled better by whatever anesthetic is selected for delivery.

Dr. Lynch: I am delighted to see that the scopolamin-morphin method of anesthesia is being properly investigated. I welcome such reports as those that have been given, as presently the truth will be known. Such a report as Dr. Baer has given is worth more than thousands of cases to the contrary, because it emanates from a well-organized clinic where the scopolamin-morphin anesthesia has been carried on under proper auspices. Scopolamin-morphin anesthesia has failed with me, or I would not be advocating nitrous oxid gas and oxygen analgesia.

In such a case as Dr. Lewis has mentioned, I would begin administering the gas as soon as the patient complains of pain, and when I got tired, I would have the nurse continue giving the gas for some time, and then relieve her. Six or seven hours is a long time for any one person to continue giving the gas.

[Dr. Lynch exhibited several types of portable and nonportable apparatus for nitrous oxid-oxygen anesthesia. The following is a list of recent articles in The Journal describing such instruments:

Flagg, P. J.: A Previously Unemphasized Feature in the Construction of Nitrous Oxid-Oxygen-Ether Apparatus, The Journal A. M. A., Jan. 3, 1914, p. 35.

Moorhead, S. W.: A Portable Nitrous Oxid-Oxygen Apparatus, The Journal A. M. A., April 25, 1914, p. 1326.

Miller, A. H: Apparatus for Nitrous Oxid-Oxygen Anesthesia, The Journal A. M. A., Oct. 24, 1914, p. 1474.

Sloan, H. G.: Nitrous Oxid and Oxygen Anesthesia, The Journal A. M. A., Sept. 13, 1913, p. 838.]

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

March, XXXVI, No. 4, pp. 353-505

1 Feeding Experiments on Rats. J. F. Gudernatsch, New York.
2 *Changes in Content of Hemoglobin and Red Corpuscles in Blood of Man at High Altitudes. E. C. Schneider and L. C. Havens, Colorado Springs, Colo.
3 Influence of Light on Reproduction in Vorticella. I. H. Hyde and C. Spreier, Kansas City, Kan.
4 *Experiments on Roentgen Radiation as Cause of Permeability Changes. A. Richards, Woods Hole, Mass.
5 *Vasotonic and Vasoreflex Center. W. T. Porter, Boston.
6 *Effect of Partial Suprarenal Deficiency on Sympathetic Irritability. R. G. Hoskins, Chicago.
7 *Inversion of Respiratory Waves in Sphygmomanometer Records of Arterial Pressure in Man. C. D. Snyder, Baltimore.
8 Toxicity of Oil of Chenopodium. W. Salant and E. K. Nelson, Washington, D. C.
9 *Action of Glandular Extracts on Secretion of Cerebrospinal Fluid. C. H. Frazier and M. M. Peet, Philadelphia.
10 Some Metabolic Influences of Bathing in Great Salt Lake. H. I. Mattill and H. A. Mattill, Salt Lake City.

2. **Effect of High Altitude on Blood.**—It is stated by Schneider and Havens that at low altitudes abdominal massage increases the number of red corpuscles and percentage of hemoglobin in the peripheral capillaries. In men partially or wholly acclimatized to a high altitude abdominal massage lowers the content of hemoglobin and red corpuscles. Before the subject reacts to the influence of lowered barometric pressure, abdominal massage may raise the content of hemoglobin and red corpuscles. Physical exertion at low altitudes concentrates the blood but during a sojourn of

four days to two weeks at a high altitude this reaction occurs only in the period before the number of red corpuscles and percentages of hemoglobin have increased. In a subject who had lived five and a half months at 14,109 feet a given exercise caused a slight concentration of the blood but not as much as it did at the altitude of Colorado Springs.

While there is a reserve supply of corpuscles at low altitudes this is lacking for some time during residence at the high altitude. The number of red corpuscles and percentage of hemoglobin do not increase immediately on arrival at the high altitude. Usually there occurs within twenty-four hours a marked increase in both. The rise in hemoglobin and red corpuscles for a particular subject during the first three or four days spent at a high altitude is not the same for different visits. The increase is most rapid in subjects who have taken regular exercise before ascending to the high altitude. Fatigue due to walking up a mountain delays the altitude increase in hemoglobin and red corpuscles. The rapid increase in the number of red corpuscles and percentage of hemoglobin the first two or three days spent at a high altitude is due in part to the throwing into the general circulation of a large mass of reserve corpuscles, and in part to a loss of fluid from the blood. The blood-forming centers also become more active and increase the total number of corpuscles and total amount of hemoglobin.

4. **Effect of Roentgen Rays on Cell Permeability.**—Richards believes that the results of his experiments warrant the conclusion that the effects which are described as the result of exposure to Roentgen rays are not to be attributed to permeability changes caused by the radiation, and the evidence available at the present time points to a theory of enzyme modification as the best explanation of the effects of radioactivity on the structure and functions of protoplasm.

5. **Vasotonic and Vasoreflex Center.**—Porter's experiments show that curare may more than double the sciatic and the depressor reflex change in blood pressure while the arterial tonus is left substantially unchanged. To him it seems impossible to reconcile these results with the present conception of the vasomotor center. Unless this can be done, he says, it will be necessary to accept a vasotonic and a vasoreflex center related but separable.

6. ***Suprarenal Deficiency and Sympathetic Irritability.***—From one-half to seven-tenths of the suprarenal tissue was removed by Hoskins from dogs in various cases, at a single operation. At intervals of one to eight days after the operation the blood pressure and the vasomotor reaction to nicotin were decreased. The reaction to epinephrin was not similarly affected. Partial suprarenal deficiency therefore results in a depression of the irritability of the sympathetic nervous system proper. Hoskins suggests that this depression is probably only one phase of a generalized interference with fundamental metabolism.

7. **Inversion of Respiratory Waves.**—An argument is submitted by Snyder demonstrating deductively the following proposition: In case the actual respiratory movements in man are synchronously and graphically recorded together with the sphygmomanometer trace, and with the extra-arterial pressure set at various points above and below the diastolic pressure, then on inspection one ought to find an inversion of the respiratory wave in the blood pressure trace with reference to the waves of the respiration trace itself. This inversion of the respiratory wave in the sphygmomanometer trace ought to take place in the vicinity of diastolic pressure. Graphic records were taken on twenty-eight individuals, twenty of whom clearly showed inversion of the respiratory wave in the blood pressure trace. Reproductions of records illustrating the inverted wave are submitted in the report. The inversion of the respiratory wave is not always obtained; eight of the twenty-eight individuals failed to show it. The same individual, however, who did not show the inversion at one time occasionally was observed to show it at another time. No satisfactory explanation of this failure can at this time be given. It is suggested, and evidence is adducted showing, that the inversion of the respiratory wave in the blood pressure wave may itself at times serve as an additional test in the determination of the correct diastolic pressure in man.

9. **Glandular Extracts and Secretion of Cerebrospinal Fluid.**—From the experiments reported by Frazier and Peet it appears that saline extracts of pancreas, spleen, kidney, liver, ovary and testes do not influence the rate of secretion of the choroid plexus and that the apparent increased rate after the injection of extracts of these glands is a mechanical rather than a secretory effect. This mechanical effect is directly due to the fall in arterial blood pressure which increases the pressure in the cranial venous sinuses, thus forcing out the performed fluid in the ventricles and cisterna magna. Brain extract causes an increase in secretion independent of blood pressure changes. Thyroid extract, either from fresh glands or the commercial desiccated beef preparation is the only glandular substance which has a specific inhibitory effect on the secretory activity of the choroid plexus, quite independently of blood pressure changes.

Archives of Internal Medicine, Chicago

March, XV, No. 3, pp.. 341-500

11 Malignant Sympathicus Tumor of Right Suprarenal. D. J. Glomset, Des Moines, Iowa.
12 *Uremia. N. B. Foster, New York.
13 *Effect of Anesthesia and Operation on Kidney Function, as Shown by Phenolsulphonephthalein Test. R. H. Miller and H. Cabot, Boston.
14 *Intestinal Obstruction. F. T. Murphy and B. Brooks, St. Louis.
15 Working Hypothesis of Hemoglobin Pigment Metabolism. T. Addis, San Francisco.
16 *Bacteriologic Examination of Enlarged Lymph Nodes Removed from Patient with Hodgkin's Disease. L. J. Rhea and E. H. Falconer, Montreal, Canada.
17 *Occurrence of Malignant Neoplasms in Young. A. S. Warthin, Ann Arbor, Mich.
18 Experimental Diabetes Insipidus in Dogs. S. A. Matthews, Lawrence, Kan.
19 *Use of Strychnin and Caffein as Cardiovascular Stimulants in Acute Infectious Diseases. L. H. Newburgh, Boston.
20 Immunity Tests in Coccidioidal Granuloma. J. V. Cooke, San Francisco.
21 Value of Electrocardiogram in Diagnosis of Cardiac Hypertrophy. E. W. Bridgman, Baltimore.

12. **Uremia.**—Foster is of the opinion that the trend of evidence points to tubular rather than glomerular involvement as the important factor in nitrogen retention, since the phenomenon is clearly manifested with experimental renal lesions that are almost, if not entirely, epithelial. It is then of considerable interest that the nearest approach to a purely tubular nephritis clinically is not marked by the highest degree of nitrogen retention. There arises then the question of degrees of structural damage in relation to function. With the contracted kidney there is so much destruction of all renal elements that it becomes quite impossible to assert that one structure is more damaged than another.

13. **Kidney Function as Shown by Phenolsulphonephthalein Test.**—Miller and Cabot summarize the results of their extensive investigations as follows: 1. The output of phenolsulphonephthalein by the kidneys grows progressively less with advancing years. 2. There is a normal daily variation in phenolsulphonephthalein excretion, influenced by many factors, the normal limits of which cannot be defined. 3. After operations under ether there is a decreased output of phenolsulphonephthalein, this decrease being greater in laparotomies than in the general average, and considerably greater in cancer cases. 4. As a general proposition, the sooner after operation the test is done the greater will be the decrease, and the output will have returned to about normal in from twenty-four to forty-eight hours. 5. The more ether that is used, and the longer the operation, the greater will be the decrease in phenolsulphonephthalein excretion. 6. Certain cases will not show decrease, but either no change or increase. Just which cases do, or will do this, cannot be stated. 7. Certain cases will show great decrease or almost total inhibition of the excretion without discoverable cause. Personal idiosyncrasy may enter into this. 8. Shock will cause great decrease in phenolsulphonephthalein excretion. So also will any condition of much impaired vitality. 9. There is no definite relation between decreased drug excretion and the occurrence of albuminuria after operation.

14. **Intestinal Obstruction.**—Summarizing the results of eighty-seven animal experiments Murphy and Brooks state that in intestinal obstruction, the content of the obstructed bowel contains a toxin which, when absorbed in sufficient amounts, produces definite symptoms and pathologic lesions and death. The toxins are the result of bacterial growth. They are not specific for any part of the intestinal tract, and may be formed in the gall-bladder. The chemical and physical characteristics of the toxic substance may vary with the length of time which the obstruction has existed as well as with the different conditions under which the obstruction occurs. This toxin may enter the circulation by way of the thoracic duct. Death after intestinal obstruction is the result of a toxemia which may be independent of infection of the peritoneal cavity or general circulation. This toxic substance does not pass through a normal mucous membrane. In the production of symptoms the factors which make this absorption possible are more important than the factors which produce the toxin. Interference with the circulation of the obstructed intestine is an essential factor in allowing this abnormal absorption. Simple obstruction of a segment of duodenum or jejunum results in earlier and severer symptoms than similar obstruction of a segment of ileum because the secretion into the lumen of the former leads to rapid distention and circulatory disturbance in the bowel wall. The symptoms and pathologic lesions following the intravenous administration of the contents of a segment of bowel after obstruction are the same as those described resulting from intravenous injection of certain of the ptomain poisons. In the surgical treatment of cases of intestinal obstruction, that part of the intestine with a mucous membrane which has been so damaged as to permit of abnormal absorption should be resected rather than drained.

16. **Lymph Nodes Removed from Patient with Hodgkin's Disease.**—Rhea and Falconer isolated from the enlarged lymph nodes of a patient who showed the clinical picture of Hodgkin's disease, and from whom excised glands histologically corresponded to this disease, a pure culture of a pleomorphic, Gram-positive, non-motile, non-acid fast, facultative anaerobic organism, similar to those described by Bunting and Yates. Cultures of the organism isolated have been repeatedly injected into the tissues about the axillae of an adult monkey (*Macacus rhesus*), but up to the present no conclusive results have been obtained.

17. **Occurrence of Malignant Neoplasms in Young.**—An analysis of 2,000 cases of malignant neoplasms was made by Warthin. The types of neoplasms were divided as follows: carcinoma 77, or 39.5 per cent.; sarcoma 92, or 47.3 per cent.; malignant teratoma 19, or 9.7 per cent.; malignant syncytioma 2, or 1 per cent.; endothelioma 5, or 2.5 per cent. Of the carcinomas the distribution as to locality was as follows: Antrum 1, breast 12, eye and conjunctiva 7, small intestine 1, colon 1, cecum 2, rectum 2, lip 9, lymph nodes 1, mouth 2, ovary 6, parotid 1, penis 2, tube 1, hand 1, leg 2, ear 1, cheek 2, nose 2, chin 1, elbow 1, stomach 2, pylorus 1, umbilicus 1, cervix of uterus 12, endometrium 2, thyroid 1.

The distribution of the sarcomas with respect to site was: bladder 2, jaw 7, femur 10, tibia 6, fibula 1, heel 1, foot 1, pelvis 3, humerus 2, ulna 2, radius 1, rib 1, scapula 1, clavicle 1, brain 1, breast 2, eye 5, eyelid 1, orbit 5, face 1, intestine 2, lymph nodes 10, muscle of abdomen 2, neck 4, nose 2, ovary 2, parotid 3, popliteal space 2, skin 5, body of uterus 4, cervix 2.

The distribution of the malignant teratomas was: cervix of uterus 1, kidney 4, ovary 2, testis 12. The endotheliomas were distributed as follows: chin 1, orbit 2, mouth 1, neck 1 as to age distribution. The curve is high during the first year, falls then to rise at puberty, after which there is a steady rise up to the limit of the period, aged 30. The large number in the first year emphasizes the importance of the *congenital factor*, and this influence is felt in the case of the majority of the tumors found up to the period of sexual ripeness, even when no actual evidences of a teratoid nature could be demonstrated in the tumor. Sarcoma predominates in the period of infancy and childhood; but the *parallel increase of both sarcoma and carcinoma with age is noteworthy and in contradiction to the usual belief that sarcoma is essentially a disease of childhood.* The cases of malignant teratoma fall in the periods of early childhood and developing sexual life. Particularly is this the case with the malignant teratomas of testis and ovary, the majority of these cases developing after puberty and in the early period of sexual maturity. No special relationship to the period of dentition is shown. No cases occurred in the fifth year, and none in the twelfth and thirteenth years. The number of cases in the years 6 to 11 was too small to show any conclusion. The main facts shown are the relatively high number of congenital tumors, the gradual increase in incidence of tumors from the age of adolescence into mature life, the relation of malignant teratomas to puberty and the parallel incidence of carcinoma and sarcoma.

19. **Use of Strychnin in Acute Infectious Diseases.**—Strychnin sulphate, in medicinal doses, Newburgh says, does not increase the output from the heart, slow the pulse or materially raise the blood pressure. There is no logical basis for its use as a cardiovascular stimulant. Caffein-sodiosalicylate, in the doses employed, does not raise the blood pressure or slow the pulse.

Archives of Pediatrics, New York

February, XXXII, No. 2, pp. 81-160

22 Renal Infantilism. Report of Case. L. Porter, San Francisco.
23 Cutaneous Regional Variation in Pirquet Reaction. J. A. Colliver, Los Angeles.
24 Use of Liquid Paraffin in Infants. H. K. Hill, Philadelphia.
25 Edema Complicating Gastro-Enteritis. J. F. Sinclair and J. A. Speed, Philadelphia.
26 Relation of Pediatrist to Community. W. N. Bradley, Philadelphia.

Boston Medical and Surgical Journal

March 18, CLXXII, No. 11, pp. 393-428

27 Progressive Neuromuscular Atrophy; Report of Three Cases in Family Without Heredity. F. F. Hatch, Boston.
28 *Value of Gold Sol Test (Lange) in Cerebrospinal Fluid Obtained Post Mortem. H. C. Solomon and E. S. Welles, Boston.
29 Enchondroma. Review of Literature and Report of Three Cases. L. A. O. Godda, Boston.
30 Study of Disturbances of Stomach. H. F. Hewes, Boston.
31 Study of Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. Analysis of One Hundred and Thirty-Four Microscopically Proved Cases. T. W. Harmer, Boston.

28. **Value of Gold Sol Tests in Cerebrospinal Fluid Obtained Post Mortem.**—The spinal fluids obtained post mortem from the lumbar region in a series of twenty-six cases were tested by Solomon and Welles. Cases that are clinically fairly stationary gave the same results ante and post mortem with the gold sol test. Post-mortem spinal fluid from cases of general paresis usually gave the typical "paretic reaction," such as given by similar cases ante mortem. Post-mortem spinal fluid from cases of a non-inflammatory nature may give the expected negative reaction; but "unexpected" positive reactions are obtained with certain post-mortem spinal fluids, as are found with certain ante-mortem fluids from similar types of cases. The results with post-mortem fluids tested by the gold sol test of Lange are comparable to those obtained with the ante-mortem spinal fluid and when the body is well preserved or the fluid obtained early, the results are the same as would have been obtained just prior to death. Therefore, it is concluded that the gold sol test has the same value in the examination of cerebrospinal fluid obtained post mortem from the lumbar region as ante mortem, and the results may be similarly interpreted for diagnostic purposes.

Bulletin of Johns Hopkins Hospital, Baltimore

March, XXVI, No. 289, pp. 69-92

32 *Osteogenic Power of Periosteum: Bone Transplantation. J. S. Davis, Baltimore, and J. A. Hunnicutt, Athens, Ga.
33 Jonathan Hutchinson Iconography. W. Osler.
34 Account of Surgery and Surgeons of American Revolution. W. B. Platt, Baltimore.

32. **Osteogenic Power of Periosteum: Bone Transplantation.**—One hundred and sixty-seven experiments were done by

Davis and Hunnicutt on fifty dogs and seventeen rabbits. The results were controlled by careful dissection and by Roentgen-ray and microscopic examinations. Free periosteal transplants did not produce bone in the large majority of experiments, even though osteoblasts were adherent to the transplants. Pedunculated flaps of periosteum did not produce new bone. Free periosteal transplants and pedunculated periosteal flaps, with bone shavings attached, produced bone in each experiment. From this the authors surmise that bone particles had been accidentally transplanted in those experiments in which bone was found after the transplantation of free periosteum.

The removal of periosteum had little, if any, effect on the nutrition of a bone. The surface from which the periosteum was removed showed very little overgrowth of bone, unless there had been considerable irritation of that surface, either by trauma or by infection. The area from which the periosteum had been taken was covered with a thin, very adherent fibrous membrane; or the muscle tissue was adherent to the denuded area. Absorption occurred when a silver ring was snugly applied around a bone over the periosteum, and also at times when it was applied around denuded bone. There was no new bone formed from either the periosteum or bone, when a silver ring was placed around a bone beneath the periosteum. Both auto and isobone, without periosteum, were effective in repairing skull defects.

Auto and isobone without periosteum, when transplanted into the periosteal tube after subperiosteal resection of a rib, caused stimulation of bone growth from the periosteum and also from the rib ends. Transplants covered with periosteum, and also foreign bodies, stimulated bone growth only from the rib ends. Transplants of the same size in a periosteal tube, after subperiosteal resection, under exactly the same conditions, acted quite differently. After subperiosteal resection of a portion of a bone, the growth of bone in repairing the defect was from the bone stumps, the periosteum acting as a limiting membrane. Autobone, both with and without periosteum, lived and was successfully transplanted to fill defects in bone. Clinically, it is advisable to transplant bone covered in part at least, with periosteum. Isobone in a bone defect acted as a scaffold for the growth of new bone from the living bone stumps, but there was ultimate absorption of the transplant. Autobone, both with and without periosteum, was absorbed when transplanted into soft parts. The periosteum seemed to have some protective influence against early absorption. The fat of those transplants which had grown together and produced new bone is doubtful, but as absorption was going on, and as the tendency of free bone in the soft parts was to be absorbed, it seems probable that absorption would eventually have occurred. The same may be said of isobone in soft parts, except that in no instance was any new bone formed from the transplant.

California State Journal of Medicine, San Francisco

March, XIII, No. 3, pp. 87-128

35 Dystocia Due to Funnel Pelvis. J. M. Slemons, San Francisco.
36 Increased Blood Pressure. J. M. King, Los Angeles.
37 Case of Anthrax. J. C. Fallon, Reno, Nev.
38 Perversion of Forces in and About Oral Cavity. B. F. Gray, Colorado Springs, Colo.
39 Endocarditis with Streptococcemia. Infection from Tonsils. W. H. Strietmann, Oakland.
40 After Medicine What? R. Russ, San Francisco.
41 Spinal Anesthesia. L. L. Stanley, San Quentin.
42 Combined Treatment of Syphilis with Mercury and Salvarsan. G. W. Hartman, San Francisco.
43 Clinical Value of Percussion of Skull. W. F. Beerman, San Francisco.
44 Gun-Shot Wound of Ear. Report of Two Cases. C. F. Welty, San Francisco.
45 Report of Unusual Case of Labyrinthine Deafness. G. P. Wintermute, San Francisco.

Canadian Medical Association Journal, Toronto

March, V, No. 3, pp. 181-276

46 Involvement of Central Nervous System in Syphilis. A. W. M. Ellis, New York.
47 Pyelitis as Complication of Pregnancy and Puerperium. B. P. Watson, Toronto.
48 Early Diagnosis of Gastric Carcinoma. A. W. George and I. Gerber, Boston.
49 Boas-Oppler Bacillus (Lactic Acid Bacillus), and Diagnostic Importance of Its Presence in Gastric Contents. G. Chambers, Toronto.
50 Artificial Pneumothorax in Treatment of Tuberculosis. W. B. Kendall, Gravenhurst.
51 Case of Extramedullary Angioma of Spinal Cord. W. McKeown and J. Loudon, Toronto.

Iowa State Medical Society Journal, Des Moines

March, V, No. 3, pp. 89-128

52 Rabies in Iowa. H. Albert, Iowa City.
53 What Public Should Know About Cancer. L. W. Littig, Davenport.
54 Sex Teachings. G. C. Moorhead, Ida Grove.
55 Twilight Sleep. C. E. Dakin, Mason City.
56 Case of Pellagra. F. A. Ely, Des Moines.
57 Submucous Resection of Nasal Septum. F. E. V. Shore, Des Moines.
58 *Vaccine Treatment of Infections. M. G. Sloan, Des Moines.
59 Case of Hemophilia Treated with Horse Serum. G. F. Dolmage, Buffalo Center.

58. **Vaccine Treatment of Infections.**—There can be no question says Sloan but that in properly administered autogenous vaccines we have a fairly successful method of treating a large class of infections in which heretofore we have been practically helpless.

Journal of Cutaneous Diseases, New York

March, XXXIII, No. 3, pp. 161-248

60 Xeroderma Pigmentosum Following Severe Sun Exposure. Report of Two Cases. W. T. Corlett, Cleveland.
61 *Urticaria Pigmentosa, Particularly in Regard to Its Histology. F. C. Knowles, Philadelphia.
62 *Vaccine Treatment of Ringworm of Scalp. A. Strickler, Philadelphia.
63 *Purpura Annularis Telangiectodes. G. M. MacKee, New York.

61. Abstracted in The Journal, June 20, 1914, p. 1989.

62. **Vaccine Treatment of Ringworm of Scalp.**—From an experience with this method of treatment extending over seven months, Strickler concludes that tinea tonsurans can be cured by vaccine. How great is the proportion of cures which can be obtained by this method of treatment alone, he is not prepared to say, because the cases so treated by him are too few to permit of such conclusions. He feels that it should prove valuable in conjunction with local treatment. It should shorten the time of treatment and possibly place this therapeutic measure on a par, so far as time goes, with the Roentgen-ray method of treatment, without sharing in the dangers of the latter method. In the first effort to make a vaccine from tinea tonsurans, suspicious hairs were obtained from the scalp of three patients. These hairs were soaked in absolute alcohol for fifteen minutes, then immersed in sterile salt solution and transplanted by a sterilized forceps to "French proof agar" in an Erlenmeyer flask and allowed to grow for twenty-four days. Crystals of sodium chlorid, chemically pure were rubbed up with the growth and after triturating it for some ten minutes, rubbed up so finely as to leave but a very few small particles, thus eliminating the necessity of filtration of the solution. To this enough sterile distilled water was added to make a normal saline solution.

From the growth on an ordinary Erlenmeyer flask, about 500 c.c. of vaccine were made up. To this 8 to 10 c.c. of chloroform were added to kill the growth, and then the vaccine was heated to 60 C. for one hour. Controls for living fungi were made on French proof agar, and for pyogenic organisms, on agar. The vaccine was preserved by the addition of sufficient phenol to bring it up to 0.25 per cent. It was then tubed in sterile vials and was ready for use.

The vaccine may be employed in doses varying from 0.5 c.c. up to 4 c.c. It has been found of no value to employ so large a dosage as the latter; the usual dose varied between 1 c.c. and 2 c.c. The injections were given at intervals of three days. The region between the scapulae, in which there is considerable loose tissue, and the buttock, were the areas chosen for injection, preference being given to the former. About thirty-six hours after the injection, but only after the patient has had six or seven injections, an infiltrated area develops at times, at the point of injection. This infiltration can be made to disappear by painting with tincture of iodin and applying a dressing of ichthyol ointment once daily. In no instance was there any constitutional reaction following the injections. The number of injections varied from seven in some instances up to seventeen in others.

63. Abstracted in The Journal, June 13, 1914, p. 1920.

Journal of Outdoor Life, New York

March, XII, No. 3, pp. 85-115

64 Open Air School Exhibit at Panama-Pacific Exposition. S. C. Kingsley, Chicago.
65 Why Are Coughs? E. F. Bowers.
66 Home or Climatic Treatment, Which? T. Frazer, Asheville, N. C.
67 Social Service Nurse. J. A. Miller, New York.
68 Roentgen Ray in Tuberculosis Sanatorium. W. A. Gekler, Rockville, Ind.
69 What We Should Know About Tuberculosis. J. J. Lloyd, Catawba Sanatorium, Va.
70 Nostrum Evil. G. M. Kober, Washington, D. C.
71 Moving Pictures for Inward Eye. M. S. Labarce, Hartford, Conn.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

March, VI, No. 4, pp. 413-532

72 Helenin. P. D. Lamson, Boston.
73 Action of Certain Quarternary Ammonium Bases. J. H. Burn and H. H. Dale, London.
74 Quantitative Observations on Antagonism. A. R. Cushny, London.
75 *Pharmacology of Respiratory Center. II. A. R. Cushny and C. C. Lieb, London.
76 Effect of Homatropin on Vagus. H. S. Zulick, Philadelphia.
77 Physiologic Actions of Homocholins and Some of Their Derivatives. R. Hunt, Boston.
78 *Influence of Drugs on Human Sensory Threshold. E. G. Martin, C. M. Grace and J. H. McGuire, Boston.

75. **Pharmacology of Respiratory Center.**—Cushny and Lieb found that the action of morphin and of ethyl carbamate (urethan) on the respiratory center offer typical differences. Morphin slows the breathing in air without materially decreasing the depth, while ethyl carbamate may induce no change except that arising from the general narcosis. The reaction to CO_2 inhalation under morphin is of the same type as the normal—the respiration increases in depth and rate; the increase in depth may be as great or greater than the normal, while the rate increases in the same ratio as holds in the normal animal when dilute CO_2 is substituted for air; the actual increase is of course much smaller than in normal animals. The reaction to CO_2 inhalation under ethyl carbamate remains of the normal type as far as the depth is concerned, but changes its character as regards the rate—as the dose of ethyl carbamate increases, the acceleration under CO_2 diminishes until no acceleration is obtained, and ultimately CO_2 in most instances actually slows the respiration. Oxygen lack has the same effect as CO_2 inhalation under ethyl carbamate or morphin. The CO_2 concentration in the blood increases under ethyl carbamate poisoning and also under morphin, though more slowly. But this increase can not be considered the cause of the reversed action of CO_2 inhalation under ethyl carbamate. Similarly the fall in blood pressure does not account for the reversal. The reaction by apnea to rapid artificial inflation of the lungs is not materially altered in deep ethyl carbamate poisoning; it may be somewhat longer. Under morphin the phase of apnea is distinctly prolonged.

The slowing of the respiration under morphin is ascribed to an action on the intrinsic rhythm of the respiratory center which is rendered slower. The reaction of this depressed center to the hormones of the blood and to nervous reflexes appears not to be different in character from that of the normal center. In ethyl carbamate poisoning, and presumably in poisoning from other members of the alcohol-chloroform group, the intrinsic rhythm of the center is not depressed to the same extent and the respiration may remain normal in rate, though it is often slow. The reaction to reflexes also remains of the normal type. But the reaction to the blood gases is altered, so that increased CO_2 or [illegible]ed O_2 has less accelerating action than normally, and [illegible] actually slow and stop the breathing. The hormone thus loses its stimulating effect and exercises only its depressant effect even in low concentrations, while in the normal animal this depressant action is only elicited by high concentrations. In death from morphin poisoning, the respiration fails because the intrinsic rhythm of the center is abolished, while in ethyl carbamate poisoning the breathing ceases mainly because the center responds by slowing, and finally by arrest, to the accumulated CO_2 instead of accelerating and thus eliminating it. While the morphin and ethyl carbamate thus differ in their action on the respiratory rhythm, they both have less effect on the strength of the impulses emitted, as measured by the depth of the breathing, which appears to depend exclusively on the CO_2 concentration in the blood and center under each of these poisons.

78. **Influence of Drugs on Sensory Threshold.**—Two subjects studied by the authors showed marked lowering of general sensitiveness within one hour after the administration of acetphenetidin (5 to 15 grains) by mouth. The criterion was the threshold for electrocutaneous sensibility (Martin method). One of the subjects, the one with greater normal sensitiveness, gave evidence of a certain degree of tolerance after ten doses, distributed over a period of two months. The other subject reacted markedly throughout the investigation and was generally more affected by the larger doses than by the smaller ones.

Journal-Lancet, Minneapolis

March 15, XXXV, No. 6, pp. 135-164

79 University-Mayo Affiliation. C. L. Greene, St. Paul.
80 Mayo Foundation from Standpoint of Graduate School. G. S. Ford, Minneapolis.
81 Principles of Affiliation of Mayo Foundation and University. G. D. Head, Minneapolis.
82 Teeth as Foci of Infection. F. B. Kremer, Minneapolis.
83 Complicated Labor. Report of Case. J. Farrage, Park Rapids.

Kentucky Medical Journal, Bowling Green

March 1, XIII, No. 4, pp. 137-166

84 Relation of Pathologic Conditions in Otorhinology to General Medicine and Surgery. J. A. Stucky, Lexington.
85 Therapeutic Rationale. B. J. O'Connor, Louisville.
86 Ectopic Gestation. H. J. Phillips, Louisville.

Maine Medical Association Journal, Portland

March, V, No. 8, pp. 281-320

87 Pellagra. H. L. Bartlett, Norway.

Medical Record, New York

March 20, LXXXVII, No. 12, pp. 463-504

88 History of Pathologic Physiology of Icterus. C. G. Cumston, Geneva, Switzerland.
89 Clinical Features of Exophthalmic Goiter. C. V. R. Bumsted, Newark, N. J.
90 Intraspinal Treatment of Syphilis of Central Nervous System. M. J. Synnott, Montclair, N. J.
91 Clinical Significance of Blood Pressure. P. Nicholson, Ardmore, Pa.
92 Abortion of Typhoid. W. L. Frazier, Mountain Home, Ida.
93 *Prophylaxis of Puerperal Convulsions. S. H. Blodgett, Boston.
94 Two Months' Service in Small Hospital. A. Whitman, New York.
95 Cannula and Needle for Blood Transfusion and Intravenous Infusions. D. J. Kaliski, New York.

93. **Prophylaxis of Puerperal Convulsions.**—The changes made by Blodgett in the diet and treatment of the prospective mother consisted broadly in watching carefully the amount of urea excreted by the kidney, and when this fell below what appeared to be normal for the patient, in at once withdrawing all meat and fish from the diet. The rule was made that cases applying for admittance to the hospital for their confinement should eat meat but once daily, and bring a sample of the twenty-four-hour urine to the hospital every three weeks up to the sixth month of pregnancy. After that time the urine was to be sent in every two weeks. Any patient showing a slight subnormal urea output was ordered to send in the urine each week, and if the decrease still persisted she was notified to come into the hospital, in which the urine could be examined each day and the diet regulated as judged advisable. For 1912 there were 768 confinements with two cases of convulsions and one induced labor. For

1913 there was 890 confinements with two cases of convulsions and no induced labor.

Blodgett has advised against the termination of pregnancy in which the urea output has been normal, or in which by giving a meat-free diet he could secure a normal urea output and has given very little consideration in deciding the question of the relation of possible convulsions to the amount of albumin present in the urine or to the clinical symptoms. So far as medicine is concerned there has been no general rule in regard to the cases. Very few of them have received any medication whatever, and medicine has been given only in cases in which it is necessary to keep the bowels in normal condition. From experience in these cases Blodgett has come to the point in which he has felt it safe to advise the continuation of pregnancy (the case being under constant supervision), even in cases in which the patients have headache, dimness, or blurring of vision, and a large amount of albumin provided the excretion of urea does not go below normal.

Missouri State Medical Association Journal, St. Louis

March, XII, No. 3, pp. 91-144

96 Hodgkin's Disease. Report of Case which Yielded Positive Cultures. G. Ives, St. Louis.
97 Appendicitis in Children. M. B. Clopton, St. Louis.
98 Blood Changes in Tuberculosis. W. W. Duke, Kansas City.
99 Joint Syphilis. A. O'Reilly, St. Louis.
100 Missouri's Mental Defectives. G. W. Robinson, Kansas City.
101 Icteric Diseases of New-Born Infant. J. Zahorsky, St. Louis.
102 Tonsillitis. W. K. Statler, Oak Ridge.

Modern Hospital, St. Louis

March, IV, No. 3, pp. 147-226

103 Winifred Masterson Burke Foundation—Convalescent Group. T. J. Van der Bent, New York.
104 Feeding the Hospital—Classes of People to be Fed. L. Graves, Cleveland
105 Forty Years of Thalassotherapy. W. H. Bennett, Atlantic City, N. J.
106 Cereal Breakfast Foods—Composition, Digestibility and Relative Value. J. P. Street, New Haven, Conn.
107 New Bethesda Maternity Hospital in Cincinnati. C. Golder and W. Gillespie, Cincinnati.
108 Norwood Civic Association Health Center. E. Ross, Norwood, Mass.
109 Manufacture of Nitrous Oxid for Anesthesia in Hospitals. A. R. Warner, Cleveland.
110 Conduct of Unendowed Small Hospital. N. B. Jordan, Aurora, Ill.

New York Medical Journal

March 20, CI, No. 12, pp. 549-600

111 *Intestinal Stasis, Bands, Kinks and Membranes. R. A. Keilty and A. J. Smith, Philadelphia.
112 Hematogenous Infections of Kidney. G. E. Brewer, New York.
113 Arsenic Poisoning; Case Report from China. A. C. Reed, Changsha, China.
114 Solid Fibroid Tumor of Ovary. J. T. Johnson, Washington, D. C.
115 Gallstone Tray. A. Schachner, Louisville, Ky.
116 Abdominal Symptoms in Pleurisy and Pneumonia. J. Dorning, New York.
117 Iodin Fumigator. W. L. Capell, Omaha.
118 Nature and Pathogenesis of Epilepsy. L. P. Clark, New York.
119 Treatment of Epilepsy. I. Bram, Philadelphia.

111. Intestinal Stasis, Bands, Kinks and Membranes.—This paper correlates the various phases of this subject and includes the study of 100 autopsies. Keilty and Smith emphasize that every case is a study in itself, and before treatment, especially surgical, is undertaken, a thorough knowledge of the principles of the case must be obtained. It is obvious that simple parietopericolic membranes are harmless and should be left alone. On the other hand, simply to sever inflammatory adhesions, as in the case of the gallbladder to the duodenum (as was done at autopsy), a midline coloptosis would result, and possibly the patient would be worse off than before. Then, too, in dealing with these anomalies, Nature's habit of adaptability must be considered. The intestine may perfectly compensate for a bad kink, and if this was suddenly relieved, loss of support might result in torsion, ileus, or volvulus. The authors urge the adoption of a uniform nomenclature; that Lane's work should be reviewed carefully; that the status of various membranes should be fixed; that the physiology of the gastro-intestinal tract, as it refers to peristalsis, should be clearly understood.

These "bands" are of three types; congenital, developed hypertrophies, and inflammatory. Intestinal toxemia is common, the result of stasis, brought about primarily by the traction of these various bands, producing intestinal hypertrophy, with secondary fatigue or degeneration and dilatation. The condition occurs in the well nourished as well as in the neurasthenic. Intestinal ptosis occurring with general visceroptosis is merely an exaggerated type of the simpler forms. The various possibilities must be clearly understood, and each individual case carefully studied before any treatment is inaugurated. When surgical means are applied, the mechanism must be clear, else the result will be worse than the original condition. Finally, at operation the entire abdomen must be carefully explored, because these conditions rarely affect one region without another.

Northwest Medicine, Seattle

March, VII, No. 3, pp. 69-102

120 Hydronephrosis. Report of Case. G. S. Peterkin, Seattle.
121 Pyelography. W. J. Pennock, Spokane.
122 Value of Decompression Operations in Disorders of Brain. K. A. J. MacKenzie, Portland, Ore.
123 Difficulties in Diagnosing Ectopic Pregnancy. F. R. Fursey, Spokane.
124 Transverse Presentations. N. M. Benyas, Portland, Ore.
125 Repeated Pregnancy in Same Tube. L. Ricen, Portland.
126 Differential Diagnosis of Typhoid, Gastro-Enteritis and Appendicitis. R. W. Fisher, Rigby, Ida.
127 Treatment of Appendicitis. E. C. Rich, Ogden, Utah.
128 Crushing Injuries. W. A. Wright, Pocatello, Ida.
129 Desirability of Early Treatment in Precancerous Lesions. C. Snow, Salt Lake City.

New Jersey Medical Society Journal, Orange

March, XII, No. 3, pp. 105-156

130 Diagnostic Methods in Diseases of Rectum and Sigmoid Colon. F. C. Yeomans, New York.
131 Abnormal Pregnancy. G. A. Rogers, Newark.
132 Bone Tuberculosis. G. H. Sexsmith, Bayonne.
133 Pain in Upper Abdomen Due to Chronic Disorders. H. D. Jump, Philadelphia.
134 Appendicitis as Factor in Other Abdominal Affections. L. J. Hammond, Philadelphia.

Ohio State Medical Journal, Columbus

March, XI, No. 3, pp. 151-210

135 Therapeutics of Sympathetic Ophthalmia. H. Gifford, Omaha.
136 Infantile Uterus. M. A. Tate, Cincinnati.
137 Essential Factors in Establishing and Maintaining High Standard of Public Health. H. C. Brown, Columbus.
138 Home Treatment of Tuberculosis. H. A. Berkes, Cleveland.
139 Premature Infant. H. J. Morgan, Toledo.
140 Chronic Pyelitis: Its Cause, Clinical Course and Treatment. F. C. Herrick, Cleveland.

Southern Medical Journal, Mobile

March, VIII, No. 3, pp. 173-252

141 *Effect of Impounded Water on Incidence of Malaria. H. R. Carter, Baltimore.
142 *Malaria Carriers and Important Rôle They Play in Persistence and Spread of Malaria. C. C. Bass, New Orleans.
143 Losses to Rural Industries Through Mosquitoes that Convey Malaria. D. L. Van Dine, Washington, D. C.
144 Losses to Rural Industries from Malarial Mosquitoes. J. K. Thibault, Jr., Washington, D. C.
145 *Thirty Cases of Malaria, Estivo-Autumnal, Treated with Quinin Intravenously. T. E. Wright, Monroe, La.
146 Report of Malaria Commission of Southern Medical Association. C. C. Bass, New Orleans.
147 *Organism Probably Causing Pellagra. T. E. Sanders, Hot Springs, Ark.

141, 142 and 145. Abstracted in The Journal, Dec. 12, 1914, p. 2158.

147. Organism Probably Causing Pellagra.—July 14, 1914, Sanders withdrew the spinal fluid from a pellagrin, who had died one hour previously from a violent case of pellagra, exhibiting marked cerebral symptoms. Part of the fluid was examined and the other part was incubated. The part that was examined showed a very few organisms that appeared to be oval in shape, and the periphery stained more intensely than the center with Giemsa stain. The other part of spinal fluid was incubated for about a week bef[illegible]d area any apparent growth. A smear showed the same organism. Transfer was made from the growth in the spinal fluid to agar-bouillon and Loeffler's blood serum. There was no growth on the agar-bouillon, but it grew on the blood serum. Sanders kept the growth alive on blood serum by transplanting for quite a while; then it finally died out.

July 31, 1914, a similar case presented itself and Sanders went through the same routine and obtained the same organism. In both cases the organism finally died out on Loeffler's blood serum after many transplants. Oct. 18, 1914, Sanders held an autopsy on a pellagrin who had died of a violent typhoidal type of pellagra with marked skin lesions of the wet ulcerative type. The abdominal fat was very little, if any, reduced. The spleen was comparatively small to the pellagrin's weight. He split the spleen with a sterile knife and inoculated a special medium, consisting of a saturated corn meal and agar bouillon faintly acid with hydrochloric acid. On culturing he obtained the same organism and it has been growing on that special medium ever since. The organism is highly motile and seems to pass through a definite cycle of some kind. It is characterized by a multiplicity of forms changing from a small oval cell-like form to small bacilli, thread-like bodies and comparatively large bacilli. Every day it appears different, but appears to come back to the same forms. Sanders has been growing it for over four months and the growth appears the same as when it started. A large number of fecal smears Sanders had gathered from pellagrins in the diarrheal stage of the disease contained large quantities of the same organism.

West Virginia Medical Journal, Wheeling

March, IX, No. 9, pp. 291-326

148 Study of Joint-Bodies from within, Present in Articulations Otherwise Apparently Normal. A. P. Heineck, Chicago.
149 Acquired Non-Traumatic Cataract of Young. C. B. Wylie, Morgantown.
150 Syphilis—Salvarsan—Scepticism. W. C. Slusher, Bluefield.
151 Warning Concerning Use of Salvarsan. W. C. Slusher, Bluefield, and E. B. Burchell, New York.
152 Case of Sporotrichosis. R. H. Haynes and S. L. Cherry, Clarksburg.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

March, XII, No. 135, pp. 65-96

1 *Atonic Form of Cerebral Diplegia. Report of Cases. F. E. Batten and W. H. von Wyss.
2 Cardiac Failure in Child, Aged Six Years, Associated with Atheroma of Pulmonary Artery and Extreme Dilatation of Right Ventricle. P. J. Veale and C. Coombs.
3 Hematoma of Lower Lid in Infant, Aged Five Months: Symptom of Infantile Scurvy. S. Stephenson.
4 Pneumococcus Infection and Immunity. R. I. Cole.

1. **Atonic Form of Cerebral Diplegia.**—The four cases cited by Batten and von Wyss have in common a hypotonic condition of the voluntary muscles of the body, especially of the lower limbs, and a deficiency of the synergetic action of the muscles, as shown by the inability to stand or walk, but there was no loss of power in performance of active movements. One case showed a marked degree of ataxia, characterized by a lack of proportion of the movements (dysmetria of Thomas). In two of the cases there was also a certain amount of hypertonia, as evidenced by the adductor spasm and overflow of the abdominal reflexes; in one case there was an occasional extensor response of the plantar reflexes. There also was in two cases rigidity of the lower limbs in a certain position, namely, when the children were suspended by the axillae. Not one of the cases showed the extreme hypotonia described by Foerster with the exaggerated flexibility of the trunk, head and neck. Two of the children were markedly mentally deficient and mute, and their condition resembled closely that described by Pierce Clark. Three of liver the children were born as breech presentations. One showed cardiopathic malformation, namely, congenital dislocation of the

British Medical Journal, London

February 27, I, No. 2826, pp. 365-404

5 Treatment of Malignant Disease of Skin. J. H. Sequeira.
6 Report of Work Carried Out at Radium Institute, London, in 1914. A. E. H. Pinch.
7 *Radium Treatment at Royal Infirmary, Edinburgh, During 1914. D. Turner.
8 Tuberculous Soldier at Front. T. Oliver.
9 Treatment of Epidemic Cerebrospinal Meningitis. G. C. Low.

March 6, No. 2827, pp. 405-452

10 *Application of Strong Antiseptics to Infected and Non-Infected Wounds. C. J. Bond.
11 Treatment of Pernicious Anemia by Salvarsan and Neosalvarsan. B. Bramwell.
12 Benzol Therapy in Leukemia and Lymphosarcoma. T. G. Moorhead.
13 Trench "Frost-Bite." C. G. Watson and C. S. Myers.
14 Extraction of Shrapnel Bullet from Knee-Joint Through Vertical Incision. W. Robinson.
15 Removal of Eyes in Presence of Orbital Cellulitis. W. T. Lister.

7. **Radium Treatment at Edinburgh Royal Infirmary.**—Sixty-three patients attended for radium treatment at this institute during the past year; of these, 36 were in-patients, 27 were out-patients; 34 of the patients suffered from, in all but 1 case, inoperable malignant disease, 23 of these from carcinoma and 11 from sarcoma. There were 12 cases of rodent ulcer, 6 of exophthalmic goiter, 2 of otosclerosis, 1 of middle-ear deafness, 1 of Paget's disease, 1 recurrent wen, 1 simple tumor, 1 nevus, 1 leukoplakia, 1 warty tumor, 1 of hypertrophied tonsils. Though a cure was not effected in any of the malignant cases, nor, says Turner, considering their advanced nature, was it to be expected, yet in practically all of those who were treated more or less benefit was produced by the relief of pain, the cessation of discharges, the healing of ulcerated surfaces, the removal of local growths and the prolongation of life. In some of the cases radium was used as a prophylactic after the surgical removal of a growth, and sufficient time has not yet elapsed to ascertain its effect.

Remarkable results were produced in some of the malignant cases; thus an epitheliomatous growth was entirely removed, first from the posterior wall and then from the anterior wall of the vagina, so that not a trace of it remained; there has, however, been a recurrence which is being treated. In a rapidly growing periosteal sarcoma of the lower end of the femur in a boy of 13 the application of radium caused the growth to shrink and to become dense, hard and fibrous so that whereas, it bled like an aneurysm on the first introduction of radium, two months later, on a second introduction it scarcely bled at all, and it was so hard and dense that it was only with difficulty that the radium could be inserted.

Malignant disease of the buccal cavity, the pharynx, larynx and posterior nares appears to be less amenable to radium, but this Turner suggests may be partly due to the difficulty of administering a sufficient dose in such positions. Of 12 cases of rodent ulcer, 9 were easily cured; the remaining 3 have not yet been long enough under treatment for the effect to be produced. In the 6 cases of exophthalmic goiter radium was of undoubted benefit, in 1 case apparently bringing about a definite cure.

10. **Applications of Strong Antiseptics to Wounds.**—Bond ascertained by actual clinical observation that the free application of strong antiseptics like pure phenol at the time of operation to extensive wounds, free from disease germs, does not materially affect the healing of such wounds. The usual preparatory treatment as used in the aseptic method is first carried out. In one leg the wound left by the long incision on the inner side of the calf, which may measure 6 or 8 inches in length and (after the necessary dissection) 3 or 4 inches in width, was well rubbed over with pure phenol until the tissues assumed the dirty white appearance characteristic of the reagent. In the other leg of the same patient the corresponding incision was treated with tincture of iodin (B. P. strength). In other patients, out of a number of incisions on the same limb, one was treated with pure phenol, one with tincture of iodin, one with mercuric chlorid solution (1 to 1,000), one with phenol lotion (1 to 20), and the other incisions with no antiseptics at all. The edges

of the wounds were coapted in all cases by Michel's metal clips, and all were dressed alike with plain white sterilized gauze, wool and bandage.

The only difference that could be ascertained in the patients' own sensations after recovery from the anesthetic was that incisions treated with phenol smarted rather less than incisions treated with iodin. There was little or no difference, as far as painful sensations were concerned, between wounds treated with and those treated without antiseptics; such slight irregular differences as were present might well be accounted for by entanglement of delicate nerve endings in the ligatures. It was usually impossible to tell from the appearance of the line of the incisions or the condition of the parts round, after the removal of the dressing on the second day, or at a later period which of the wounds had been treated by one method and which by the other. All healed by primary union without undue local reaction or any elevation of temperature in the ordinary way.

Glasgow Medical Journal

March, LXXXIII, No. 3, pp. 161-240

16 Head Injuries. A. J. Wilson.
17 Case of Polyglandular Syndrome with Suprarenal Hypernephroma and Adenoma of Pituitary Gland—Both of Small Size. J. Anderson.
18 Treatment of Impacted Breech Cases. R. Jardine.

Journal of Laryngology, Rhinology and Otology, London

March, XXX, No. 3, pp. 89-144

19 Noise-Deafness: Recent Experimental Work, and Clinical Investigation into Effect of Loud Noise on Labyrinth in Boiler-Makers. T. R. Rodger.
20 Some Considerations Which Determine Extent of an Operation in Septic Invasion of Lateral Sinus. H. E. Jones.
21 Abnormal Styloid Process Causing Tonsil Irritation. M. Yearsley.

Lancet, London

February 27, I, No. 4774, pp. 419-478

22 Treatment of Wounds in War. W. W. Cheyne.
23 *Colloidal Iodin Associated with Serum Treatment in Tetanus. Report of Cases. Auregan.
24 Headache Associated with Intranasal Disorders. L. H. Pegler.

March 6, No. 4775, pp. 479-532

25 Operative Treatment of Cleft Palate. H. Blakeway.
26 Case of Multiple Pulsating Tumors Secondary to Hypernephroma. F. Taylor.
27 Consideration of Some Elementary Principles Involved in Treatment of Soil-Contaminated Wounds. A. G. R. Foulerton.
28 Case of Phenacetin Poisoning; Recovery. P. Hamill and T. G. M. Hine.
29 *Two Cases of Traumatic Hemoperitoneum. C. H. Whiteford.

23. ***Colloidal Iodin and Serum Treatment in Tetanus.***—Auregan has combined colloidal iodin treatment, both in the form of dressings and daily intramuscular injections, with serum treatment in tetanus. Tetanus patients who have been thus treated proved to have survived in a proportion of 68.8 per cent., a percentage distinctly higher than the average proportion of recoveries ordinarily obtained. Ten tetanus patients were treated by serotherapy without colloidal iodin treatment; of these, 4 recovered and 6 succumbed, giving a percentage of 40 recoveries. Fourteen patients were treated by serum therapy combined with colloidal iodin treatment; 10 recovered and 4 succumbed, a percentage of 68.8 recoveries.

29. **Traumatic Hemoperitoneum.**—Two cases are cited by Whiteford. In one case the bleeding came from an infected wound of the liver. A man, aged 22, stabbed himself in the left hypochondrium with a bayonet. The wound opened the peritoneal cavity and celiotomy was performed through the left rectus muscle. A handful of blood clot was removed from between the stomach and left lobe of the liver. Swabs passed into the pelvis returned dry. The source of the bleeding, which had ceased, was the left lobe of the liver, which was completely perforated 1½ inches above its lower border. No other viscus was injured. The abdominal incision was closed and the bayonet track in the parietes packed with gauze soaked in tincture of iodin. Forty-eight hours later the lower abdomen became tense and tender and was drained suprapubically by a tube passed into the pelvis, many pints of blood and peritoneal fluid being evacuated. The gauze in the bayonet track was replaced by a tube. Both incisions suppurated freely. Food was taken well and the bowels acted regularly. The abdominal condition steadily improved, but the mania became more acute. Most of the known hypnotics were given in heroic doses but failed to secure sleep, and the patient died exhausted seventeen days after the injury.

The second patient was a married woman, aged 39, who had had one child seven years ago but no other pregnancies, and in whom one and a half years ago menstruation began to last from four to seven weeks, without pain or intermenstrual discharge. The loss was not sufficient to cause marked anemia. An operation was performed per vaginam. The uterus was found to be mobile and 3 inches in length, the cervix being unusually long. The only abnormality was a hard, submucous mass, embedded in the right side of the cervix and extending upward in the uterine wall. This mass, which was not encapsuled, was dissected out, the right side of the cervix being divided and closed by sutures at the end of the operation. The mass removed resembled in size and shape the two phalanges of an adult thumb, and was shown by the microscope to consist of a vascular fibrous tissue with no signs of a capsule. Two hours after operation the patient rapidly became collapsed and almost pulseless. The collapse slowly passed off under stimulation and administration of saline solution per rectum. Fifty-six hours after operation there was definite peritonitis with distended immobile abdomen, dulness in the flanks, repeated vomiting and complete intestinal paralysis, pulse 120 and acute pain. A blood count showed leukocytes 13,000 and red cells 50 per cent. below normal. A drainage tube was inserted into the pelvis from above the pubes, evacuating over a quart of blood and peritoneal fluid. The Fallopian tubes palpated through the suprapubic incision were found free and not enlarged. The suprapubic drainage gave immediate and permanent relief to the pain. During the first two weeks broken-down blood clot drained freely per vaginam. Recovery ensued.

Practitioner, London

March, XCIV, No. 3, pp. 343-486

30 Injection Treatment of Hemorrhoids. F. S. Edwards and Others.
31 Cerebral Paralyses of Uremic Origin. H. B. Shaw.
32 Four Cases of Incipient Pulmonary Tuberculosis in Children. D. B. Lees.
33 Common Errors in Diagnosis. A. Abrahams.
34 Radiology and Electrotherapeutics in War Time. F. Hernaman-Johnson.
35 Recent Work in Radium, Roentgen Ray and Electrotherapeutics. N. S. Finzi.
36 Eclampsia. J. Oliver.
37 Recent Work on Nervous and Mental Diseases. H. C. Thomson.
38 *Primary Splenomegaly or Splenic Anemia. T. J. Hollins.
39 Toxins and Master-Toxins. Study in Tuberculosis. A. W. Robertson.
40 Suicide—From General Practitioner's Point of View. J. B. Adams.

38. **Primary Splenomegaly.**—Experimental inoculation of rabbits with the colon bacillus has led Hollins to conclude that primary splenomegaly is due to an active hemic intoxication, and that the colon bacillus can cause all the features of this disease. Whether the colon bacillus is the sole cause, which is probable, or merely one among many causal microorganisms future research, he says, will have to decide. The hypertrophy and fibrosis of the spleen and the anemia are, he believes, due to an active intoxication by this microorganism. It seems suggestive that, in from 50 to 80 per cent. of all cases of cirrhosis of the liver, splenomegaly is found and proves in his opinion that the liver and spleen are attacked simultaneously by a toxic agent. The anemia is hemolytic and due to a specific hemolysin which, in the case of the bacillus coli, may be termed colilysin. That the bacillus coli has a hemolytic action on blood cells Hollins proved by experimenting with a culture in vitro. The microscopic evidence seems to disprove the idea that the anemia is hemolytic, for no deposits of pigment or broken-down cells have ever been discovered in the enlarged spleen, like those seen in the other hemolytic anemias such as pernicious anemia.

Hollins has seen three cases of the disease during the [illegible] five years, and has made a special study of it. In [illegible] certain clinical facts arrested attention and [illegible] area conclusion that this affection is probably due to poisons absorbed from the gastro-intestinal tract, and that these are most likely due to the colon bacillus. This presumption from clinical data has been substantiated fully by experiment. The clinical facts are: 1. Two of the patients were females, and had a history of constipation. 2. Oral sepsis was present in one case. 3. The enormous numbers of colon bacilli present in the diarrheic motions of one case of Banti's disease, met with in the stage preceding death. 4. In one case, nervous lesions resembling those artificially produced by injection of animals with *B. coli* were present. 5. The evidence of other diseases associated with invasion of *B. coli*, especially coliuria. 6. The presence of *B. coli* in the normal spleen. 7. Cirrhosis of the liver is produced by toxins from the gastro-intestinal tract, and probably by the colon bacillus.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXIV, No. 2, pp. 5-13

41 Cremasteric Reflex. S. Oinuma.

Annales de Gynécologie et d'Obstétrique, Paris

July, XLI, No. 7, pp. 385-432. Last indexed Aug. 8, 1914, p. 514

42 *Reciprocal Relations Between Pregnancy and Mammary Cancer. (Gestation et cancer de la mamelle.) J. L. Faure and A. Pinard.
43 *Operation to Restore Permeability to Fallopian Tube. (Salpingolysis pour sterilité; grossesse consécutive.) Goullioud.
44 Missed Labor with Extra-Uterine Pregnancy. (Rétention abdominale d'un foetus ectopique à terme en ayant imposé pour une retention utérine.) A. Fruhinsholz and G. Michel.

42. **Reciprocal Relations between Pregnancy and Mammary Cancer.**—Pinard has encountered in forty years of practice only two cases of pregnancy occurring in women with cancer of the breast, while pregnancy with cancer of the uterus is not uncommon. He reports in detail one of the two cases; the woman's breast had been the seat of a bunch of small torpid tumors for nearly two years. She became pregnant and the tumors began to grow, the aspect near term resembling a bunch of nipples. The breast was excised and delivery followed within two weeks; mother and child are still living over two years later. In the other case a woman of 28 noticed a small tumor in the left breast at the sixth month of a pregnancy. Immediately after delivery the tumor increased rapidly in size and the woman died in four months from generalized malignant disease. No attempt at an operation had been made in this case. Another young woman speedily succumbed to acute cancer of the breast six months after a childbirth, but Pinard does not know whether the tumor had developed first during or after the pregnancy. These experiences emphasize the necessity for prompt removal of every lump discovered in the breast during or soon after a pregnancy. The operation should be done without the least delay and should be as radical as possible.

43. **Operative Treatment of Sterility.**—Goullioud does not believe it is possible for the permeability of the tubes to be restored spontaneously or under medical measures when the obstruction is bilateral, the work of peritoneal adhesions. This obstruction of the tubes in consequence of some unrecognized abortion or of ascending gonorrhea is the main cause of sterility in women. In order to remedy this, he liberates the tube from the adhesions binding it down, and has found that this salpingolysis alone is enough to remove the obstacles to conception. A typical instance is related; the woman had been married for seven years but there had been no pregnancy after an early miscarriage at the third month. She seemed to be quite healthy except for a dragging sensation in the abdomen after fatigue from any cause. The operation revealed slight chronic inflammation in the right adnexa which were removed, and the tube on the other side was freed from adhesions and its permeability thus reestablished. She was delivered of a healthy child two and a half years after this salpingolysis.

also. 1. **Archives Mens. d'Obst. et de Gynécologie, Paris**
and inflammat. *November, III, No. 11, pp. 193-240*
liver coordinated wi Fallopian Tube Perforating into the Bladder;
cardiopathic hepatitis, Salpingites suppurées ouvertes dans la vessie.)

45. **Salpingitis Perforating into the Bladder.**—Auvray has been able to find only very few recorded cases of this kind. Probably in many instances the perforation in the bladder escaped notice in the operation on the suppurating tube. His own three patients were women in the thirties, and the history of the case and cystoscopic findings suggested the diagnosis at once. In one case the bladder wall was intensely congested and covered with blisters; in another the two openings had healed when the bladder was examined post mortem. This last patient succumbed to complications of a suppurative kidney trouble. Nothing in cystoscopy had suggested the existence of the pyelonephritis. Experience shows that the fistulas into the bladder scarcely ever heal spontaneously while the kidneys are constantly exposed to ascending infection. Hysterectomy, and preferably by the abdominal route, is the treatment advocated.

Bulletin de l'Académie de Médecine, Paris

February 16, LXXIII, No. 7, pp. 213-476

46 *Provisions for Infant Welfare During the War. (Protection de l'enfance pendant les cinq premiers mois de guerre dans le camp retranché de Paris.) A. Pinard.
47 Wounds of the Ear, Nose and Throat. (Considérations cliniques sur l'oto-rhino-laryngologie en temps de guerre.) E. Moure.
48 *Germs in the Breath. (Transport et multiplication des germes contagieux par l'air expiré.) A. Trillat.
49 The Trench Foot. (Les gelures aux pieds dans les tranchées.) A. Castex.
50 Vital Staining and Electric Tests in Examining Nerves Wounded in War. (La chirurgie des nerfs sous le controle direct de l'injection colorée, de la biopsie et des réactions électriques: bio-histo-physiologie.) J. A. Sicard and Others.
51 Operations on Nerves; One Hundred Cases. H. Claude.

46. **Provisions for Infant Welfare During the War.**—Pinard relates the organized work for infants undertaken at Paris when families were disrupted by the call of the breadwinner to the colors. An "office centrale d'assistance maternelle et infantile" was organized on the principle that during a war and as long as the army is kept mobilized every woman without adequate means who is pregnant or has a child under 3 years of age, should be assured the social, legal and medical protection to which she has a right in civilized society. Never have pregnant women been so well cared for; 74 per cent. of the 16,579 childbirths during the first five months of the war were in institutions, some improvised to serve as maternities during the war. Never have all the parturients and young children had so much done for their welfare as in Paris at this time. Comparing the figures with those of the previous year, the result is shown in a much lower morbidity and mortality and there were only 45 foundlings to 662 in the same period in the previous year, and all this notwithstanding the anxiety of the mothers with their dear ones in the trenches. All of the women delivered in the institutions were able to nurse their infants at first. Pinard thinks the time will come when notification of every pregnancy reaching the fifth month will be made compulsory. (See also Paris Letter, p. 1010.)

48. **Germs in Breathed-Out Air.**—Trillat's disquieting views in regard to the transmission of infectious disease were summarized in The Journal, Jan. 2, 1915, p. 88. The micro-organisms in expired air may serve as nuclei on which moisture becomes condensed. The moist dust thus formed obeys physical laws different from those governing dry dust. His experiments have shown further that the microbes are capable of proliferating in this moist dust and when it alights on any surface. Cold induces condensation of the moist dust on a surface, and this may be one factor in the disturbances and infections which follow getting chilled. The moist dust floats lower and condenses on a surface more readily on cold, damp days, and where many persons are breathing in a crowded room. The volatile nitrogenous substances in breathed-out air serve as nutrients for micro-organisms and promote their proliferation. Infection of others may thus result from later generations of the micro-organisms expelled in the breath. The gases in vitiated air may also rouse to virulence micro-organisms floating dormant in the air as saprophytes. Recent research has demonstrated how slight may be the causes influencing the biologic aptitudes of microbes, how virulence

may be a merely temporary attribute, and how an infectious disease may vary in consequence from the mildest sporadic form to violent explosions of epidemics. (Further details in Paris Letter, p. 1010.)

Presse Médicale, Paris

February 18, XXIII, No. 7, pp. 49-55

52 Treatment of Wounds of the Nerves in War. S. Pozzi.
53 Wounds of the Genital Organs. E. Delorme. (See Paris Letter, p. 1089.)
54 Localization of Metal Foreign Bodies in the Tissues. (Méthode pour localiser exactement les projectiles après la radioscopie.) A Vergely.
55 Iodized Charcoal in Treatment of Infected Wounds. (Charbon iodé dans le traitement des plaies infectées.) L. Lemaire.
56 Reenforced Sheet Lead Splints for Fractures. (Gouttières en plomb pour fractures.) Rigot.

Revue Médicale de la Suisse Romande, Geneva

February, XXXV, No. 2, pp. 57-116

57 Luxation of the Semilunar Bone of the Carpus; Three Cases. H. Vulliet.
58 *Eosinophilia Consecutive to Experimental Resection of the Sciatic Nerve. N. Loewenthal.

58. **Disturbances Following Resection of the Sciatic Nerve.**—Loewenthal has been studying for years the behavior of the sciatic nerve in rabbits after resection. In the course of this research he noted the effect on the skin, lymph glands and blood, and calls attention here in particular to the marked eosinophilia which results in various organs that *ordinarily do not contain eosinophils.* It is possible thus to influence their production in large numbers, in remote organs, merely by severing this nerve.

Archiv für Verdauungs-Krankheiten, Berlin

February, XXI, No. 1, pp. 1-88

59 Importance of Gravity as a Factor in Swallowing. (Ueber den bewegenden Einfluss der Schwerkraft beim Trinken in aufrechter-und Kopfstellung.) J Schreiber.
60 *Etiology of Dysenteriform Affections. H. Strauss.
61 Pathology of the Appetite. B Stiller.
62 *Suppurating Bronchial Glands Perforating into Esophagus. (Ueber Bronchialdrüseneiterung.) G. Kelling.
63 Roentgen Findings with Gastric Cancer. (Das Ventrikelkarzinom in typischen Röntgenbildern.) T. E. H. Thaysen.
64 *Tetany and Gastric Ulcer. (Tetanie und Magengeschwür.) F. Schilling.

60. **Etiology of Dysenteriform Affections.**—Strauss remarks that dysentery was regarded first as a clinical picture, then as an anatomic condition, and, later than this, as a manifestation of a certain bacterial infection. Recent experience has shown, however, that a number of intestinal microparasites are able to induce hemorrhagic disease of the bowel, including paratyphoid and Y bacilli as well as the Flexner and Kruse-Shiga bacilli. Only by examining both the stools and serum is it possible, as a rule, to differentiate the virulent from the harmless types of both acute and chronic dysenteriform affections. In typical chronic colitis gravis, swelling of joints, iridocyclitis and venous thrombosis are not uncommon, testifying to the infectious nature of the process. Tonsillitis or meat poisoning preceded the bowel trouble in some cases. In others, streptococcus or staphylococcus infectious processes accompanied it. In one case of chronic hemorrhagic and ulcerative disease of the lower bowel paratyphoid B bacilli were found—the second instance on record, Strauss remarks, of a *chronic paratyphoid affection.* He tabulates the findings in seven cases of chronic hemorrhagic colitis in which he applied the agglutination test with both dysentery and paratyphoid bacilli. The trouble had developed in all without any acute onset. The Y bacillus or the typhoid bacillus was agglutinated in one case each and the Shiga-Kruse in two cases, but the findings in the stool did not coincide in any instance. In a still later case serum from a woman of 22, who for over two years had had abdominal pains and bloody stools, agglutinated the Kruse-Shiga bacillus 1 to 200 and the paratyphoid bacillus 1 to 100, but not the typhoid bacilli.

62. **Perforation of Bronchial Glands into Esophagus.**—Kelling describes three cases in which he made the correct diagnosis of suppurating bronchial lymph glands perforating into the esophagus. The patients were young adults, inclined to "scrofula" and exposed to unusual inhalation of dust or soot. There were no symptoms to attract attention until perforation occurred, and then crumbly, blood-stained products of suppuration or pigmented, ill-smelling masses came up in the mouth when the patients reclined, but there was no vomiting. Other differential symptoms are pains between the shoulder blades, coughing without expectoration, rise of temperature and the Roentgen findings. *Sometimes there is* difficulty in swallowing and salivation. Esophagoscopy is liable to be dangerous. Gastric ulcer must be excluded. He explores the esophagus with a sponge-holder, as he explains in detail; some of the pus sticks to the sponge.

A cancer in the esophagus usually causes more or less trouble from stenosis, while this is exceptional with lymph-gland trouble. Treatment must be by keeping up the strength with nourishing food which yet must be soft, perfectly chewed, and washed down with fluids to reduce to the minimum the irritation of the esophagus walls. Healing required several months in his cases, the patients keeping quiet and lying down much of the time, as deep inspiration tends to stretch the abscess. Vaccine therapy with bacteria cultivated from the lesion might be considered. It might be possible to rinse out the esophagus with hydrogen dioxid or alcohol, after closing the outlet below with an inflatable bag. Girard advises temporary gastrostomy to leave the esophagus completely at rest or permit its thorough rinsing out, draining away the fluids through a tube in the opening into the stomach. Rehn in one case opened the mediastinum and removed tuberculous glands compressing the esophagus and bronchi, and the patient, a young woman, recovered; there had been no perforation in this case. Kelling does not believe this is practicable when perforation has already occurred, but it might be possible to aspirate out the contents of the abscess with suction, as with Bier's suction-pump devices. A long, oval bulb, studded with holes, on the end of a catheter connected at the other end with a rubber bulb might answer the purpose, the patient breathing deep as the suction is applied.

In all the cases the clinical picture suggested gastric ulcer at first, except for pain in the back at the fourth thoracic vertebra; sometimes the spinous processes along here were tender. Fibers of the vagus are liable to be compressed and cause reflex pain and other disturbances, even paralysis of the vocal cords or laryngospasm. The mouthful of food swallowed sticks in the esophagus for a moment and then slides gradually onward; there may be pain at the manubrium.

64. **Gastric Ulcer and Tetany.**—Schilling reports two cases which confirm the fact that tetany may develop *merely from* excessive concentration of the blood from loss of blood or other fluids with gastric ulcer. Fluids by the rectum were not absorbed fast enough to ward off the tetany. One of the patients died in the attack of tetany; her complaints of intense thirst had not been sufficiently heeded. Subcutaneous or intravenous infusion in time would probably have saved her.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 20, XLV, No. 8, pp. 225-256

65 *Theory and Practical Importance of the Wassermann Reaction. W. v. Gonzenbach. Commenced in No. 6.

65. **The Wassermann Reaction.**—Gonzenbach writes from the Hygienic Institute at Zurich that material sent in from all over that part of Switzerland has sustained the general view that, while a positive Wassermann is not specific, yet it is so characteristic that a positive reaction in the absolute absence of syphilis is so exceptional that the possibility need not be regarded in practice. He warns, however, that a positive reaction indicates merely syphilis in the system; a dubious manifest lesion may be of other nature. Bruck has reported two cases of leukoplakia of the tongue [illegible] on the tongue and positive Wassermann. [illegible] during the [illegible] showed that the tumor was a cancer in [illegible] of it. In [illegible] bacilli were cultivated from the tumor and [illegible] area

Gonzenbach tabulates the findings with the test in the various stages of syphilis in 3,755 cases. In 57 cases of aortic insufficiency the reaction was positive in 37; in 15 of 31 cases of aneurysm of the aorta, but only in 9 of 52 cases of other heart affections and in 2 of 27 cases of arteriosclerosis. In disease of the central nervous system, the reaction was constantly negative in all the 26 multiple sclerosis and 13 polyneuritis cases. In 16 cases of pernicious anemia the reaction was positive in 4, and in one of them a complete cure was realized under specific treatment. The findings in 911 eye cases showed the prominent rôle played by syphilis in atrophy of the optic nerve (29 per cent.) oculomotor paralysis (51.9 per cent.) and keratitis (55.7 per cent.). Of the total material sent to the institute for investigation, a negative Wassermann was obtained in 61.4 per cent. of the 10,193 cases. A change from positive to negative under treatment occurs more readily with recent than old infection; refractory cases are not uncommon when the interval is over three years.

Deutsches Archiv für klinische Medizin, Leipzig

CXVII, No. 2, pp. 79-127. Last indexed February 20, p. 702

66 Laws Regulating the Concentration of the Serum as Studied with the Refractometer. (Zur Frage der Restitution der Serumkonzentration.) J. Löwy.
67 Importance of Measurement of Pulse Energy in Study of the Cardiovascular Apparatus: Sphygmobolometry. (Untersuchungen mit dem neuen Sphygmobolometer nach Sahli.) C. Hartmann.
68 Research on the Dynamics of the Pulse; the Energometer and the Volumbolometer. (Die Füllung des Pulses und das Pulsvolumen.) T. Christen and H. Sahli.
69 Pathology of the Blood with Chronic Lead Poisoning. (Zur Pathologie des Blutes bei der chronischen Bleivergiftung.) Schnitter.

Deutsche medizinische Wochenschrift, Berlin

February 18, XLI, No. 8, pp. 213-240

70 *The Water Supply in Villages Entered by the Troops. (Schnelluntersuchungen und provisorische Verbesserungen von Brunnen im Kriege.) K. Kisskalt.
71 Grazing Wounds of the Skull. (Streifschüsse an der Schädelkapsel.) Noehte.
72 Transportable Extension Splint. H. Töpfer.
73 Substitutes for Iodin in Sterilizing the Skin. (Zur Desinfektion des Operationsfeldes mit Jodtinktur oder anderen Arzneimitteln.) J. Schumacher.
74 Aviator Darts. (Fliegerpfeil-Verletzungen im Kriege.) H. Rimann.
75 *Disease of the Liver Accompanying Heart Disease. (Kardiopathische Hepatitis.) P. Heinrichsdorff.
76 Secondary Rays in Deep Roentgen Treatment as Substitute for Radio-Active Substances. H. F. Salzmann.
77 *Probably Non-Tuberculous and Non-Rachitic Hip-Joint Trouble in Boys. (5 Fälle der Calvé-Perthesschen Krankheit.) K. Michelsen.
78 Metallic Mercury, etc., to Ward Off Lice. (Zur Bekämpfung der Läuseplage.) A. Blaschko.

70. Provisional Measures for Improving the Water Supply.—Kisskalt refers to the water supply in places entered by the troops, and gives summary directions in regard to examination of wells, improving those capable of improving, closing those that are hopelessly contaminated, and digging new ones. Recent research has demonstrated that ammonia and large amounts of organic substances may be found in wells that are above reproach, while frequently the water is chemically pure in an uncovered well. He says that a well must be regarded as incapable of improvement if there is danger of contamination and the sides are of wood, peat or uncut stones. By letting down a lantern into the wells it is easy to see where dirt-bringing water seeps through a brick or cement wall. The cover should be made water-tight with roofing paper or sheet iron. A few pounds of chlorinated lime shaken into the water will stop the use of a hopelessly contaminated well, or it can be rendered unfit for human use, without harm to cattle, by coloring the water with fluorescein.

75. Cardiopathic Hepatitis.—Heinrichsdorff insists that with disease of the heart the liver suffers also not only from interference with its circulation but also from the toxic action of the cause primarily responsible for the heart disease itself. This toxic action is felt not only by the heart but by the liver also. It entails in the latter central degeneration of the acini and inflammation of Glisson's capsule. These changes in the liver coordinated with the changes in the heart can be called cardiopathic hepatitis, to distinguish the condition from that with mechanically produced congested liver. He describes the various changes induced, the chronic form finally running into fibrosis. The congestion and the toxemia may affect the liver when the heart is injured only secondarily. Hence the same pathologic findings in the liver may be encountered with pulmonary tuberculosis and vascular and kidney affections. Even when there is no impeding of the circulation in the liver, the discovery of heart disease throws light on the causes of a liver affection. This non-cyanotic heart-liver trouble is the clearest evidence we have testifying to the toxic origin of the affection.

77. Juvenile Deforming Osteochondritis.—Michelsen's article has appeared elsewhere and was summarized in these columns Oct. 24, 1914, p. 1514. The diagnosis is based on the extensive changes in the bone, shown in the Roentgen picture, and the negative tuberculin skin reaction. Treatment should be with massage to prevent atrophy of the muscles, with rest for the joint at other times. It is better to have the child use crutches, with a thicker sole on the sound foot, to keep from use of the limb affected as long as the trouble seems to be progressive. In twenty known cases, seventeen were in boys. The age is usually between 5 and 10. The trouble is not of an inflammatory nature but resembles more the disturbance in the scaphoid bone and patella to which Köhler called attention; all are probably of nutritional or vascular rather than traumatic origin.

Deutsche Zeitschrift für Chirurgie, Leipzig

January, CXXXII, Nos. 5-6, pp. 381-604

79 *Local versus General Anesthesia in Surgery. (In welchem Masse kann die Lokal- und Leitungsanästhesie die Allgemeinnarkose in der Chirurgie ersetzen?) E. Holzwarth.
80 Wound from Navy Signal Pistol. (Ueber Signalpistolenschüsse ohne Hautperforation; einfacher Lochbruch des Schädels.) M. zur Verth and K. Scheele.
81 *Splenomegaly with Anemia. G. Zaccarini.
82 *Primary Acute and Subacute Purulent Osteomyelitis of the Vertebrae. J. Volkmann.
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81. Splenomegaly.—Zaccarini's long article is a detailed study of the histology and clinical manifestations of enlarged spleen and the results of its removal. The patient in the case described was a woman of 40 whose spleen had been enlarging for five years while severe anemia kept pace with it, a typical case of Banti's disease. The woman died with suddenly developing fever the sixteenth day after the spleen had been removed. It weighed 1,800 gm. The disturbances in the circulation were evidently secondary to the primary changes in the spleen.

82. Osteomyelitis of the Spine.—Volkmann summarizes all the cases of osteomyelitis of the vertebral column which he has been able to find on record, classifying them according to the vertebrae involved—a total of 90 cases including 4 may be a merely temporary attribute, and how an infectious disease may vary in consequence from the mildest sporadic form to violent explosions of epidemics. (Further details in Paris Letter, p. 1010.)

Presse Médicale, Paris

February 18, XXIII, No. 7, pp. 49-55

52 Treatment of Wounds of the Nerves in War. S. Pozzi.
53 Wounds of the Genital Organs. E. Delorme. (See Paris Letter, p. 1089.)
54 Localization of Metal Foreign Bodies in the Tissues. (Méthode pour localiser exactement les projectiles après la radioscopie.) A. Vergely.
55 Iodized Charcoal in Treatment of Infected Wounds. (Charbon iodé dans le traitement des plaies infectées.) L. Lemaire.
56 Reenforced Sheet Lead Splints for Fractures. (Gouttières en plomb pour fractures.) Rigot.

Revue Médicale de la Suisse Romande, Geneva

February, XXXV, No. 2, pp. 57-116

57 Luxation of the Semilunar Bone of the Carpus; Three Cases. H. Vulliet.
58 *Eosinophilia Consecutive to Experimental Resection of the Sciatic Nerve. N. Loewenthal.

58. **Disturbances Following Resection of the Sciatic Nerve.**—Loewenthal has been studying for years the behavior of the sciatic nerve in rabbits after resection. In the course of this research he noted the effect on the skin, lymph glands and blood, and calls attention here in particular to the marked eosinophilia which results in various organs that ordinarily do not contain eosinophils. It is possible thus to influence their production in large numbers, in remote organs, merely by severing this nerve.

Archiv für Verdauungs-Krankheiten, Berlin

February, XXI, No. 1, pp. 1-88

59 Importance of Gravity as a Factor in Swallowing. (Ueber den bewegenden Einfluss der Schwerkraft beim Trinken in aufrechter-und Kopfstellung.) J. Schreiber.
60 *Etiology of Dysenteriform Affections. H. Strauss.
61 Pathology of the Appetite. B. Stiller.
62 *Suppurating Bronchial Glands Perforating into Esophagus. (Ueber Bronchialdrüseneiterung.) G. Kelling.
63 Roentgen Findings with Gastric Cancer. (Das Ventrikelkarzinom in typischen Röntgenbildern.) T. E. H. Thaysen.
64 *Tetany and Gastric Ulcer. (Tetanie und Magengeschwür.) F. Schilling.

60. **Etiology of Dysenteriform Affections.**—Strauss remarks that dysentery was regarded first as a clinical picture, then as an anatomic condition, and, later than this, as a manifestation of a certain bacterial infection. Recent experience has shown, however, that a number of intestinal microparasites are able to induce hemorrhagic disease of the bowel, including paratyphoid and Y bacilli as well as the Flexner and Kruse-Shiga bacilli. Only by examining both the stools and serum is it possible, as a rule, to differentiate the virulent from the harmless types of both acute and chronic dysenteriform affections. In typical chronic colitis gravis, swelling of joints, iridocyclitis and venous thrombosis are not uncommon, testifying to the infectious nature of the process. Tonsillitis or meat poisoning preceded the bowel trouble in some cases. In others, streptococcus or staphylococcus infectious processes accompanied it. In one case of chronic hemorrhagic and ulcerative disease of the lower bowel paratyphoid B bacilli were found—the second instance on record, Strauss remarks, of a chronic paratyphoid affection. He tabulates the findings in seven cases of chronic hemorrhagic colitis in which he applied the agglutination test with both dysentery and paratyphoid bacilli. The trouble had developed in all without any acute onset. The Y bacillus or the typhoid bacillus was agglutinated in one case each and the Shiga-Kruse in two cases, but the findings in the stool did not coincide in any instance. In a still later case serum from a woman of 22, who for over two years had had abdominal pains and bloody stools, agglutinated the Kruse-Shiga bacillus 1 to 200 and the paratyphoid bacillus 1 to 100, but not the typhoid bacilli.

62. **Perforation of Bronchial Glands into Esophagus.**—Kelling describes three cases in which he made the correct diagnosis of suppurating bronchial lymph glands perforating into the esophagus. The patients were young adults, inclined to "scrofula" and exposed to unusual inhalation of dust or soot. There were no symptoms to attract attention until perforation occurred, and then crumbly, blood-stained products of suppuration or pigmented, ill-smelling masses came up in the mouth when the patients reclined, but there was no vomiting. Other differential symptoms are pains between the shoulder blades, coughing without expectoration, rise of temperature and the Roentgen findings. Sometimes there is difficulty in swallowing and salivation. Esophagoscopy is liable to be dangerous. Gastric ulcer must be excluded. He explores the esophagus with a sponge-holder, as he explains in detail; some of the pus sticks to the sponge.

A cancer in the esophagus usually causes more or less trouble from stenosis, while this is exceptional with lymph-gland trouble. Treatment must be by keeping up the strength with nourishing food which yet must be soft, perfectly chewed, and washed down with fluids to reduce to the minimum the irritation of the esophagus walls. Healing required several months in his cases, the patients keeping quiet and lying down much of the time, as deep inspiration tends to stretch the abscess. Vaccine therapy with bacteria cultivated from the lesion might be considered. It might be possible to rinse out the esophagus with hydrogen dioxid or alcohol, after closing the outlet below with an inflatable bag. Girard advises temporary gastrostomy to leave the esophagus completely at rest or permit its thorough rinsing out, draining away the fluids through a tube in the opening into the stomach. Rehn in one case opened the mediastinum and removed tuberculous glands compressing the esophagus and bronchi, and the patient, a young woman, recovered; there had been no perforation in this case. Kelling does not believe this is practicable when perforation has already occurred, but it might be possible to aspirate out the contents of the abscess with suction, as with Bier's suction-pump devices. A long, oval bulb, studded with holes, on the end of a catheter connected at the other end with a rubber bulb might answer the purpose, the patient breathing deep as the suction is applied.

In all the cases the clinical picture suggested gastric ulcer at first, except for pain in the back at the fourth thoracic vertebra; sometimes the spinous processes along here were tender. Fibers of the vagus are liable to be compressed and cause reflex pain and other disturbances, even paralysis of the vocal cords or laryngospasm. The mouthful of food swallowed sticks in the esophagus for a moment and then slides gradually onward; there may be pain at the manubrium.

64. **Gastric Ulcer and Tetany.**—Schilling reports two cases which confirm the fact that tetany may develop merely from excessive concentration of the blood from loss of blood or other fluids with gastric ulcer. Fluids by the rectum were not absorbed fast enough to ward off the tetany. One of the patients died in the attack of tetany; her complaints of intense thirst had not been sufficiently heeded. Subcutaneous or intravenous infusion in time would probably have saved her.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 20, XLV, No. 8, pp. 225-256

65 *Theory and Practical Importance of the Wassermann Reaction. W. v. Gonzenbach. Commenced in No. 6.

65. **The Wassermann Reaction.**—Gonzenbach writes from the Hygienic Institute at Zurich that material sent in from all over that part of Switzerland has sustained the general view that, while a positive Wassermann is not specific, yet it is so characteristic that a positive reaction in the absolute absence of syphilis is so exceptional that the possibility need not be regarded in practice. He warns, however, that a positive reaction indicates merely syphilis in the system; a dubious manifest lesion may be of other nature. Bruck has reported two cases of leukoplakia of the tongue [illegible] on the tongue and positive Wassermann. [illegible] during the [illegible] showed that the tumor was a cancer in [illegible] of it. In [illegible] bacilli were cultivated from the tumor and [illegible] area

Gonzenbach tabulates the findings with the test in the various stages of syphilis in 3,755 cases. In 57 cases of aortic insufficiency the reaction was positive in 37; in 15 of 31 cases of aneurysm of the aorta, but only in 9 of 52 cases of other heart affections and in 2 of 27 cases of arteriosclerosis. In disease of the central nervous system, the reaction was constantly negative in all the 26 multiple sclerosis and 13 polyneuritis cases. In 16 cases of pernicious anemia the reaction was positive in 4, and in one of them a complete cure was realized under specific treatment. The findings in 911 eye cases showed the prominent rôle played by syphilis in atrophy of the optic nerve (29 per cent.) oculomotor paralysis (51.9 per cent.) and keratitis (55.7 per cent.). Of the total material sent to the institute for investigation, a negative Wassermann was obtained in 61.4 per cent. of the 10,193 cases. A change from positive to negative under treatment occurs more readily with recent than old infection; refractory cases are not uncommon when the interval is over three years.

Deutsches Archiv für klinische Medizin, Leipzig

CXVII, No. 2, pp. 79-127. Last indexed February 20, p. 702

66 Laws Regulating the Concentration of the Serum as Studied with the Refractometer. (Zur Frage der Restitution der Serumkonzentration.) J. Löwy.
67 Importance of Measurement of Pulse Energy in Study of the Cardiovascular Apparatus: Sphygmobolometry. (Untersuchungen mit dem neuen Sphygmobolometer nach Sahli.) C. Hartmann.
68 Research on the Dynamics of the Pulse; the Energometer and the Volumbolometer. (Die Fullung des Pulses und das Pulsvolumen.) T. Christen and H. Sahli.
69 Pathology of the Blood with Chronic Lead Poisoning. (Zur Pathologie des Blutes bei der chronischen Bleivergiftung.) Schnitter.

Deutsche medizinische Wochenschrift, Berlin

February 18, XLI, No. 8, pp. 213-240

70 *The Water Supply in Villages Entered by the Troops. (Schnelluntersuchungen und provisorische Verbesserungen von Brunnen im Kriege.) K. Kisskalt.
71 Grazing Wounds of the Skull. (Streifschüsse an der Schädelkapsel.) Noehte.
72 Transportable Extension Splint. H. Töpfer.
73 Substitutes for Iodin in Sterilizing the Skin. (Zur Desinfektion des Operationsfeldes mit Jodtinktur oder anderen Arzneimitteln.) J. Schumacher.
74 Aviator Darts. (Fliegerpfeil-Verletzungen im Kriege.) H. Rimann.
75 *Disease of the Liver Accompanying Heart Disease. (Kardiopathische Hepatitis.) P. Heinrichsdorff.
76 Secondary Rays in Deep Roentgen Treatment as Substitute for Radio-Active Substances. H. F. Salzmann.
77 *Probably Non-Tuberculous and Non-Rachitic Hip-Joint Trouble in Boys. (5 Falle der Calvé-Perthesschen Krankheit.) K. Michelsen.
78 Metallic Mercury, etc., to Ward Off Lice. (Zur Bekampfung der Läuseplage.) A. Blaschko.

70. Provisional Measures for Improving the Water Supply.—Kisskalt refers to the water supply in places entered by the troops, and gives summary directions in regard to examination of wells, improving those capable of improving, closing those that are hopelessly contaminated, and digging new ones. Recent research has demonstrated that ammonia and large amounts of organic substances may be found in wells that are above reproach, while frequently the water is chemically pure in an uncovered well. He says that a well must be regarded as incapable of improvement if there is danger of contamination and the sides are of wood, peat or uncut stones. By letting down a lantern into the wells it is easy to see where dirt-bringing water seeps through a brick or cement wall. The cover should be made water-tight with roofing paper or sheet iron. A few pounds of chlorinated lime shaken into the water will stop the use of a hopelessly contaminated well, or it can be rendered unfit for human use, without harm to cattle, by coloring the water with fluorescein.

75. Cardiopathic Hepatitis.—Heinrichsdorff insists that with disease of the heart the liver suffers also not only from interference with its circulation but also from the toxic action of the cause primarily responsible for the heart disease itself. This toxic action is felt not only by the heart but by the liver also. It entails in the latter central degeneration of the acini and inflammation of Glisson's capsule. These changes in the liver coordinated with the changes in the heart can be called cardiopathic hepatitis, to distinguish the condition from that with mechanically produced congested liver. He describes the various changes induced, the chronic form finally running into fibrosis. The congestion and the toxemia may affect the liver when the heart is injured only secondarily. Hence the same pathologic findings in the liver may be encountered with pulmonary tuberculosis and vascular and kidney affections. Even when there is no impeding of the circulation in the liver, the discovery of heart disease throws light on the causes of a liver affection. This non-cyanotic heart-liver trouble is the clearest evidence we have testifying to the toxic origin of the affection.

77. Juvenile Deforming Osteochondritis.—Michelsen's article has appeared elsewhere and was summarized in these columns Oct. 24, 1914, p. 1514. The diagnosis is based on the extensive changes in the bone, shown in the Roentgen picture, and the negative tuberculin skin reaction. Treatment should be with massage to prevent atrophy of the muscles, with rest for the joint at other times. It is better to have the child use crutches, with a thicker sole on the sound foot, to keep from use of the limb affected as long as the trouble seems to be progressive. In twenty known cases, seventeen were in boys. The age is usually between 5 and 10. The trouble is not of an inflammatory nature but resembles more the disturbance in the scaphoid bone and patella to which Köhler called attention; all are probably of nutritional or vascular rather than traumatic origin.

Deutsche Zeitschrift für Chirurgie, Leipzig

January, CXXXII, Nos. 5-6, pp. 381-604

79 *Local versus General Anesthesia in Surgery. (In welchem Masse kann die Lokal- und Leitungsanästhesie die Allgemeinnarkose in der Chirurgie ersetzen?) E. Holzwarth.
80 Wound from Navy Signal Pistol. (Ueber Signalpistolenschüsse ohne Hautperforation; einfacher Lochbruch des Schädels.) M. zur Verth and K. Scheele.
81 *Splenomegaly with Anemia. G. Zaccarini.
82 *Primary Acute and Subacute Purulent Osteomyelitis of the Vertebrae. J. Volkmann.
83 *Surgery of the Stomach and Its After-Effects. (Magenchirurgische Probleme, insbes. die Wirkung der Gastroenterostomie.) H. Brun.
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82. Osteomyelitis of the Spine.—Volkmann summarizes all the cases of osteomyelitis of the vertebral column which he has been able to find on record, classifying them according to the vertebrae involved—a total of 90 cases including 4 from his own experience. In 68.8 per cent. of the cases the onset was stormy. In a few cases the affection ran such a fulminating course that necropsy alone revealed what was the trouble, and only in about a third of all the cases was the osteomyelitis differentiated during life. A history of furuncle, abscess, eczema or felon should suggest the possibility of osteomyelitis, or a trauma affecting the spine. If the patient has complained of vague pains, perhaps radiating into the limbs, and gradually becoming localized in the spine, this should suggest spinal trouble, and by palpating and tapping on the vertebrae it may be located. If an exploratory puncture reveals pus, an operation should follow at once.

In 18 cases the osteomyelitis was mistaken for typhoid, for tuberculous spinal trouble, rheumatism, meningitis or pneumonia, influenza, general sepsis, glandular fever, torticollis, acute myelitis, Landry's paralysis, subphrenic, paranephritic or lumbar abscess, kidney colic, peritonitis or appendicitis. The symptoms may deceptively simulate meningitis except that there is seldom enlargement of the spleen or herpes. With rheumatism, there is never any tendency to a hump or gravity abscess, and the pains seldom cling to one spot. The total mortality was 41.8 per cent.; this is a great improvement over the record a decade ago. But when the spinal cord was involved, the mortality averaged 60 per cent. Incision and curetting of the focus should be supplemented by horizontal extension to prevent deformity of the spine. The after-care is particularly important when the cervical vertebrae are involved. A psoas abscess requires an ample incision.

83. **Gastric Ulcer.**—Brun argues that the primary factor is spasm of the pylorus. This causes the pain, the retention of stomach content and the resulting hypersecretion. When a gastro-enterostomy puts an end to the causes which have been inducing the pylorospasm, then the pains stop at once although the ulcer has not yet had a chance to heal, so the ulcer is not responsible for the pains. This suggests that possibly an operation on the pylorus or on the vagus innervating it might remove the cause for the ulcer. He declares that surgeons should analyze the functional disturbances more, instead of studying merely the pathologic-anatomic findings. Among the suggestions he makes along this line is that it might be possible to connect with a segment of duodenum the esophagus and the stomach, thus bridging over a cancer at the cardia, a palliative makeshift like a gastro-enterostomy.

88. **Diagnosis of Destructive Appendicitis.**—In cases of appendicitis Eisner examines the urine for urobilinogen, and he has always found it in abnormally large amounts when there was a destructive lesion in the appendix.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

February, XLI, No. 2, pp. 109-188

89 *Diagnosis of One or More Placentas at Birth of Twins. (Diagnose ein- oder zweieiiger Zwillinge ante und intra partum.) F. Ahlfeld.
90 *The Sugar Content of the Blood in Eclampsia. (Blutzucker und Eklampsie.) J. Widen.
91 Efficacy of Diathermy in Treatment of Inflammation in the Ovaries or Tubes. S. Recasens.
92 Large Papillary Adenocystoma of the Labii majoris of Fetal Origin. H. Ehrlich.
93 *Radium Treatment of Cancer of the Uterus. (Gebarmutterkrebs.) L. Adler.

89. **Twin Births.**—Ahlfeld states that if there is but one placenta, the second twin still in the uterus is liable to be bled to death if the cord of the first twin born is not ligated on the side toward the placenta. But as this is, or should be, the routine procedure, it is really of no practical importance to determine whether the twins are derived from one ovum or more. Nevertheless he reviews the signs and symptoms which point to one or the other. The blood spurts or pulsates rhythmically in the severed cord only if there is a single placenta, and not always then. If the sex of the twins is different, this speaks for two ova, as also when the membrane around the second twin consist of both chorion and amnion.

90. **Sugar in the Blood and Eclampsia.**—Widen used Bang's micromethod for determining the sugar content of the blood. As this requires only a drop of blood, he repeated his examinations before, during and after the convulsions, at various stages of the disease, and reports here the findings in eight cases. In every case, the women had abnormal amounts of sugar in the blood at times but not constantly. In the one case with fatal outcome, only very slight hyperglycemia was found and only once. In the others it fluctuated; the average ranged from 0.16 to 0.27 per cent. and the duration from one to seven days. The patients had from two to forty convulsions in all.

The severer the case, the lower the vitality and blood pressure, the less the tendency to hyperglycemia. It thus may aid in the prognosis. In one of his cases the hyperglycemia first became manifest when the woman was in profound coma. Its appearance justified a favorable prognosis, confirmed by the outcome. It seems to parallel the intoxication up to a certain point; when the intoxication passes this, then the system is unable to respond with hyperglycemia. The sugar content of the blood did not seem to be influenced by evacuation of the uterus. No connection was apparent between the hyperglycemia and albuminuria. In five cases of simple albuminuria without eclampsia, the sugar content was normal or only slightly and transiently above, but in one case of uncontrollable vomiting at the third month of pregnancy the sugar content was quite high. The sugar content in the blood from the umbilical vein was never above normal in the eclampsia cases, even when it was abnormally high in the maternal blood.

93. **Radium Treatment of Uterine Cancer.**—Adler operates in all operable cases but when this was not possible he has found radium treatment of great benefit. The technic is strictly individualized, the dosage moderate. In the last few months he has made a practice of prophylactic exposures after operating. He begins it about the tenth day, continues at four weeks' intervals, using at most 50 mg. at a ten hour sitting. He makes a point of testing the susceptibility of the patient, placing on the skin capsules with varying amounts of radium and with various filters, thus determining the individual erythema dose. As much of the inoperable growth as possible is removed, and then after an interval of two or three days, five exposures are made, each for twelve hours, the intervals between the exposures ranging from twelve hours to several days according to the local and general reaction. A second and a third series are then given after suspending for three or four weeks. The amount of radium used varied from 29 to 50 mg.

Thirty-four patients have been given radium treatment on these principles, and of the 18 who have completed the course, one has died since from abscesses in the lungs; 3 were not benefited or merely improved, but the 14 others are clinically cured. This includes 9 cases of cancer of the cervix; 2 of the body of the uterus; 2 of the rectum and 1 of the vagina. All were inoperable except in one case in which the patient had refused an operation; it was contra-indicated by severe diabetes or obesity plus age in the others.

Wiener klinische Wochenschrift, Vienna

February 18, XXVIII, No. 7, pp. 169-196

94 Improved Technic for Precision Stereoscopic Roentgenograms. (Neues Verfahren zur Raummessung an stereoskopischen Aufnahmen, insbes. an Röntgenaufnahmen.) W. Trendelenburg.
95 *Inoculation Against Cholera. (Choleraschutzimpfung.) O. Buiwid and L. Arzt.
96 General Principles for Treatment of Tetanus. (Behandlung des Wundstarrkrampfes.) H. Hinterstoisser.
97 *Extension for Fracture of the Legs in War. (Einige technische Behelfe zur Behandlung von Schussfrakturen der unteren Extremität.) G. Engelmann.

95. **Inoculation Against Cholera.**—Buiwid tabulates the details of forty-seven cases of cholera which developed among men who had previously been inoculated against this disease. Also of sixteen other cases in which men had been inoculated while already under the influence of cholera. The data confirm the far-reaching influence of the inoculation in preventing cholera and in attenuating it if it develops later. When the inoculation was done during the incubation of

cholera, its course was not aggravated thereby but rather the reverse: none died in this group. The 6.3 per cent. who died had been given only one of the three injections regarded as necessary for complete inoculation.

97. **Simplified Splints.**—Engelmann comments on the enormous numbers of splints required for the wounded, and the necessity for their being extra strong, simple and interchangeable. Plaster casts are too much trouble to make. To meet these requirements he has devised an extension splint which is proving extremely satisfactory. It is described with twelve illustrations showing the application of the principle for patients able to be up and for those in bed. For the former, the splint consists of two strips of metal connected with a ring at the top which fits over the thigh as high as it can be pushed up against the crotch. It is fastened at the lower end with a spike on each side which is driven into the shoe between the sole and the upper, close to the heel. A slide and thumb screw on each strip adjust it to the proper length. The trouser leg is slit and cut across above and below the lesion so it can be turned back and buttoned across the back to a row of buttons mounted on the outer strip of metal forming the splint.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXVI, No. 3, pp. 677-908. Last indexed January 23, p. 376

98 *Etiology of Chorea in Pregnant Women. H. Albrecht.
99 Jaundice of the Newly Born an Infectious Disease. (Der Kernicterus der Neugeborenen eine Infectionskrankheit.) B. Pfaltzer.
100 Intolerance of Fibromyomatous Uterus with Twin Pregnancies. F. Montuoro.
101 *Treatment of Placenta Praevia. C. H. Stratz.
102 Pathologic Functioning of Mammary Glands. (Zur Pathologie der Brustdrüsensekretion.) P. Lindig.
103 Indications and Contra-Indications for Use of Hypophysis Preparations in Obstetric Cases. E. Vogt.
104 Mechanism of Pathologic (Straight) Engaging of Fetal Head. (Etiologie des hohen Gradstandes, dargestellt an 6 eigenen im Laufe von einem Jahr beobachteten Fällen.) H. Martius.
105 Etiology of Jaundice of the Newly Born. T. Heynemann.
106 Changes in the Parietal Decidua with Exochorial Pregnancy. (Endometritis uteri gravidi praecipue traumatica.) H. Hinselmann.
107 *Diagnostic Significance of the Antitryptic Power of the Serum. (Antitryptischer Titer des Blutserums.) T. Chotzen.
108 Absorbing Capacity of the Puerperal Genital Organs. F. Ahlfeld.

98. **Chorea Gravidarum.**—Albrecht reports a case of recurring chorea during each pregnancy, promptly cured by serotherapy. The recurrence sustains his assumption that the chorea is a manifestation of toxic injury for which the pregnancy is responsible. This assumption is further corroborated by the prompt cure under serum treatment as for a pregnancy toxicosis. The chorea returned at the young woman's second pregnancy, and treatment with sedatives for twenty-two days gave no relief; then 20 c.c. of serum from a normal pregnant woman was injected and within twenty-four hours the severe chorea that had tormented her for over three months, subsided permanently. He suggests that a similar toxic action during the prepuberty stage may be the explanation of chorea in the young—the approach of puberty is causing more or less of a revolution in the internal secretion system, like the changes inaugurated by gestation.

101. **Placenta Praevia.**—Stratz has had 173 cases of placenta praevia in his care and has lost but one of the patients, and this was one of his very first cases. Of the children, 77 were born dead and 20 had long been dead, a mortality of 45 per cent. The statistics for the entire Netherlands in 1914 were 881 cases with mortality of 7 per cent. among the mothers and 43 per cent. of the children. In 236 cases in which the Braxton Hicks method was systematically applied, 2.7 per cent. of the women succumbed and 68 per cent. of the children. Analysis of this material confirms the value, with slight hemorrhage, of absolute quiet and narcotics for the mothers; no tamponing under any circumstances. If there is considerable hemorrhage, version according to Braxton Hicks; under constant oversight, without pulling hard on the foot; allowing spontaneous expulsion up to the shoulders. Delay extraction as long as possible and do it with extreme caution. The inflatable bag is not required when the case is managed in this way. Cesarean section should not be considered unless the woman is very anxious for a living child or other complications compel it. It is hard to sacrifice the child to the mother's safety, to listen to the heart sounds dying out before the moment has come when the rest of the child can be safely delivered. But to hesitate and think of the child is to juggle with the life of the mother. He adds that it takes more moral courage to deliberately sacrifice the child in this way than to yield to the impulse to venture the utmost to save both mother and child. In conclusion he reiterates his warning against tamponing at the beginning of the childbirth, and against haste in extracting the child. The indispensable condition for correct and successful treatment of placenta praevia is the rock-firm conviction that the Braxton-Hicks procedure is all that is necessary, and that it will certainly save the mother's life.

107. **Diagnostic Significance of the Antitrypsin Titer of the Serum.**—Chotzen tabulates the findings in 134 different persons, including 57 pregnant women and 40 with cancer. They show that the antitrypsin titer is regularly increased in pregnancy and with cancer, so that negative findings tend to exclude both.

Zeitschrift für Urologie, Berlin

January, IX, No. 1, pp. 1-40

109 Special Electrode for Diathermy in Treatment of Gonorrhea. R. Boerner and C. Santos.

February, No. 2, pp. 41-80

110 The Organic Framework of Bladder Stones. (Das organische Gerust der Harnsteine.) E. Pfister.

Zentralblatt für Chirurgie, Leipzig

February 20, XLII, No. 8, pp. 113-128

111 *Experiments with Therapeutic Chilling of Tissues and Organs. (Abkühlung von Geweben und Organen.) O. Lanz.
112 Advantages of Extension in Treatment of Wounds of the Pelvis. (Extensionsverband bei Verletzungen der Beckengegend.) W. Levy.

111. **Action of Transient Cold on the Tissues.**—Lanz has always been impressed with the way in which the skin bears freezing with ethyl chlorid without resulting injury, while the action of a corresponding amount of heat causes a severe burn. Even inflamed tissues and tumors do not make the skin over them more sensitive to the ethyl-chlorid freezing. He noticed, however, in his experiments in this line that anemic persons and those with thyroid insufficiency seemed to react with more disturbance to the freezing. On the basis of this he gave thyroid treatment to patients with chilblains, and it was a success. Cross-fire application of the ethyl chlorid did not seem to modify various organs when applied to animals, even in an intensive form. The freezing also proved impotent to arrest bleeding; the blood stopped flowing when a frozen cake of blood obstructed it, but it flowed again when the cake thawed. It is possible, he adds, that by freezing in this way we might be able to arrest temporarily the functioning of an organ without injury. This would be a useful aid in study of the glands with an internal secretion. Diathermy might perhaps answer the same purpose, with better control.

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113 Treatment of Pregnancy Kidney and Eclampsia. M. Steiger.

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114 *Artificial Pneumothorax. G. Breccia. Commenced in No. 6.

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115 Tissue Flaps to Arrest Hemorrhage in Parenchymatous Organs. (L'emostasi negli organi parenchimatosi dell'addome a mezzo di trapianti liberi di tessuti.) A. Pignatti.
116 *Spontaneous Perirenal Hematoma. A. Bevacqua. Commenced in No. 12, XXI.

February, Medical Section, No. 2, pp. 49-96

117 *Efficacy of Vaccine Therapy of Typhoid. V. Pensuti.
118 *Fatal Diplococcus Sepsis in Child. (Sindrome emorragica acutissima e setticoemia diplococcica.) O. Moreschi.